

# Railway Age Gazette

FIRST HALF OF 1917—No. 2

SIXTY-SECOND YEAR

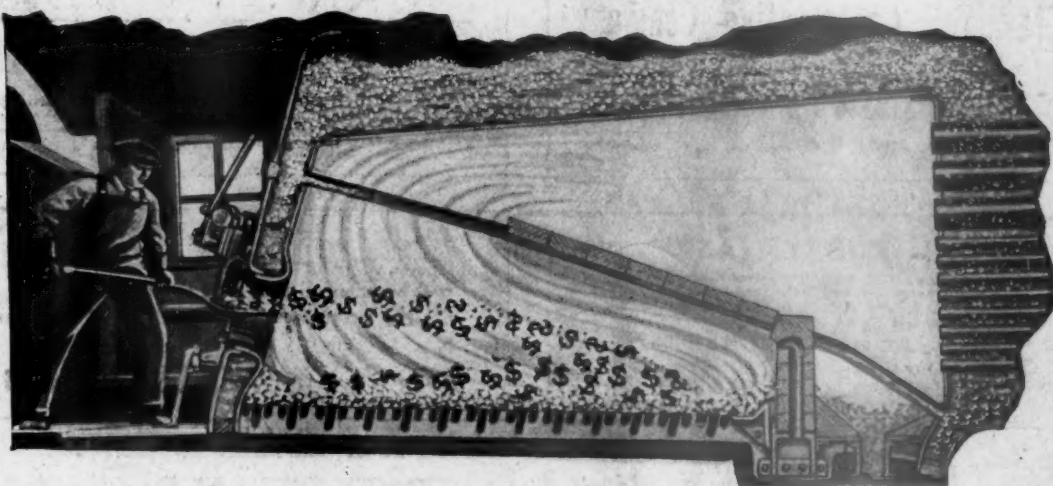
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# Railway Age Gazette

Volume 62

January 12, 1917

No. 2

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\*Illustrated.

The North Carolina Supreme Court, in a decision reported in the court news columns of this issue, once more lays down

### Progressiveness Not Discouraged by Law

the common-sense rule that for a railroad to correct a mistake does not increase its culpability for the accident which led to the correction. A man was killed at a highway crossing, and following the investigation of the circumstances additional safeguards were installed; but, says the court, this does not prove but that all reasonable safeguards had been provided already; the new safeguard may be an extreme precaution; the alleged or supposed deficiency in the former safeguards may be infinitesimal. The victim may have been reckless to an extreme degree, exonerating the railroad entirely; and yet the railroad should not be restrained from thereafter taking all reasonable measures to protect even reckless wayfarers. This rule has an application in connection with other safeguards, the automatic train-stop for instance. The proposal to install automatic stops on 50 miles of road has been seriously objected to on the ground that the existence of such an installation would make the railroad liable throughout the whole of its lines, perhaps thousands of miles, for every loss or damage which could be attributed to the lack of an automatic stop. The correct principle is perhaps well enough recognized by the courts already; but it needs to be reiterated now and then because of the strong propensity of jurymen to favor the man who is supposed to have been a victim of unfavorable circumstances.

Why is it that one road will purchase equipment rejected by another road when their requirements are the same?

### Engineering Methods in Car Construction

Why is it that when the price for the cars runs a little too high a coverplate for the center sill or some other important feature called for in the design, is omitted. Why is it that with definite limits for the size of the draft members, determined after careful study by competent engineers and accepted by an authoritative body, we find cars built exceeding these limits

by 100 per cent and more. There may be two answers to these questions; namely, ignorance of what is scientifically right or lack of back-bone to fight for what is known to be right. Mechanical men may say that they know how to design equipment and figure the stresses in every part of it, but unless they know to what limits they must work they work hopelessly in the dark. And any engineer who knowingly permits his superiors to override his judgment based on his best scientific knowledge, just to save a few dollars, without a strong fight is not true to his profession. A railroad car is subjected to more severe treatment than most any other structure. It is difficult properly to analyze all the forces set up in the different parts of a car structure, but where the practices in design have been accepted by a majority of those most closely interested in car construction there is no excuse for their being neglected. Some of the best engineering talent has been used on the M. C. B. committees in investigating the car design problems. If more use was made of their findings we would have better cars, they would not be on the repair tracks as often, and the railroads would save money.

The new securities of the reorganized company of the Pere Marquette are being traded in, in New York, "when issued,"

### A Drastic Reorganization

and the common stock is selling at about 32. F. J. Lisman & Co., New York, recently wrote a letter to some of the firm's customers calling attention to the drastic nature of the reorganization and the favorable and unfavorable conditions under which the new company begins operation. Very briefly summarized, the adverse conditions are low local rates, a disadvantage on through business, and lack of Chicago terminals; and the favorable circumstances are, growth of territory served, \$10,200,000 cash for further improvements, chances for a larger volume of competitive business, and the good terminals in Detroit, Grand Rapids and Saginaw. Especially interesting in connection with the Pere Marquette reorganization is the fact that some of the bankers who were successful in eventually forcing a thoroughgoing scaling down of

fixed charges and a capitalization based on proved minimum earning power, are the same men who are engaged in working out the reorganization of some of the other roads now in the hands of receivers. It took a long time and a lot of hammering to get through a reorganization like that of the Pere Marquette, where fixed charges were cut down from \$4,125,000 to \$1,700,000, and \$28,000,000 of bonds were converted into preferred and common stock and \$22,000,000 of bonds and \$26,000,000 of stock was done away with and over \$10,000,000 cash provided. The Pere Marquette has been in the hands of receivers since 1912 and previous to that it had been taken out of the hands of receivers in 1907. It was grossly overcapitalized in the early days and previous receiverships and reorganizations had left its complicated, top-heavy financial structure as an unbearable burden. The Michigan railroad commission a few years ago found a value for the property of the Pere Marquette, after deducting depreciation, of \$78,000,000, and, as F. J. Lisman & Co. point out, this valuation, added to the \$10,200,000 cash which the company has raised and \$5,000,000 of miscellaneous assets not included in the Michigan valuation, contrasts with a present market price for all of the securities of the new company of approximately \$62,000,000. The present capitalization, taking the stock at par, is \$105,000,000.

What is familiarly called "yard service" is really divisible into two classes of service. One of these may be properly

#### **Yard Service and Terminal Service**

called "yard service," and consists merely of the making up and breaking up trains in classification yards. The other may more properly be called "terminal service" and consists in the switching of cars before they have been put into, or after they have been taken out of, trains. This terminal switching takes place between railway yards and industrial plants and team tracks, between the yards of one railway and those of another, and not infrequently between different yards of the same railway. The distinction between yard service and terminal service was brought out with especial clearness in the testimony introduced during recent months before the board of arbitration which settled the matters in controversy between the railways and the members of the Switchmen's Union of America. It frequently has been said that while it is not practicable to put road service on an absolute eight-hour basis, it is practicable to put yard service on this basis. When by the words "yard service" reference is made merely to the "make up" and "break up" work done in classification yards this statement is substantially correct. When, however, the term "yard service" is so used as to include all terminal service, the statement that it is practicable to put "yard service" on an absolute eight-hour basis becomes incorrect. The board of arbitration in the switchmen's controversy said that probably in no more than 10 per cent of the cases could "switching crews" be put on an absolute eight-hour basis. This statement applies, and doubtless was meant to apply, especially to crews engaged in what is more properly called "terminal service." "Terminal service," especially in large terminals, is in many ways more analogous to road service than to the service performed by crews in classification yards. It commonly requires several hours for a crew which is sent out to switch cars to industries or to the yards of other railways to complete their trip and in most cases if they were required to quit work at the end of 8 hours they would quit at places a long way from those at which they began work. Unless an absolute eight-hour day law should be enacted the time is probably remote when a real eight-hour day will be established in most terminal service. What can be and may be done in classification yards is a different matter.

### **WHAT THE RAILWAYS EARNED IN 1916**

THE fact that both the gross and net earnings of the railways of the United States in 1916 have been greater than for any other year in their history is being given wide publicity, and some railway officers who have been worrying about poor earnings for a long time are now concerned for fear that their present big earnings will be taken by the public as an indication of a permanent condition and that it may lead to new attacks on them in the way of demands for reductions in rates or requirements that will cause permanent increases in their expenses. Some anti-railroad agitators are already seizing the opportunity thus presented, but they would be less liable to succeed if everybody who reads the figures could be made to understand their true significance and the fact that they represent abnormal conditions. When stated in terms of the percentage earned on the investment in property devoted to the public service the earnings of the railways seem moderate indeed when compared with the huge profits being garnered by some industries as a result of the conditions created by the war. While the earnings have been growing, the amount of capital necessarily invested in the business has been growing also.

In the issue of September 29 we published an estimate that the earnings for the fiscal year ending on June 30 represented a return of 5.6 per cent on the investment and later available figures confirm the result. For the calendar year just closed an estimate compiled by the Bureau of Railway Economics from the official returns to the Interstate Commerce Commission, as they are available, together with what is known as to the trend for December and a part of November, shows a net return of 5.9 per cent.

Such figures necessarily require some estimating because the official property investment figure for 1916 has not yet been reported. For 1915 it was \$72,689 per mile and an estimate of \$73,000 for 1916 is very conservative. The operating income of roads earning over \$1,000,000, as officially reported for the fiscal year, was \$1,029,241,000. Adding to this an estimate for Class II and Class III roads and deducting for the items of taxes of lessor companies, hire of equipment, joint facility and miscellaneous rents, gives \$1,004,000,000 or \$4,068 per mile for net operating income. This was 5.57 per cent on the investment of \$73,000. For the 12 months comprising the calendar year the net operating income, estimated on the same basis and allowing for the more rapid increase in operating expenses during the winter months, was approximately \$1,071,000,000, or \$67,000,000 greater than for the fiscal year, or \$4,331 per mile. If the investment per mile be increased to \$73,400 to allow for the additional investment during the past six months the rate of return for the year was 5.9 per cent.

As long as the earnings of the roads do not exceed 6 per cent they can hardly be charged with making unreasonable profits, especially when it is known that the operating expenses necessary to handle the abnormal volume of traffic are already beginning to increase faster than the gross earnings.

The Interstate Commerce Commission in its annual report to Congress published a table giving the percentage of net return from 1891 to 1915 and an estimate for 1916 (for Class I roads only) of 6.35 per cent on \$73,500 per mile. These figures would be somewhat reduced by including the figures for the roads earning less than \$1,000,000 a year, and the commission also made no allowance for hire of equipment, joint facilities or miscellaneous rents which are an actual operating expense. This accounts for the difference between its estimate and that of the Bureau. It is significant, however, that the commission's tables for 25 years state the average rate of return on investment as 4.54 per cent for the entire period. For the five year period ending with 1915 the rate was 4.56 as compared with 5.41 for the five years ending with 1910.

## WOULD NOT ARBITRATION HAVE BEEN BETTER?

**A**NOTHER step has been taken toward a "settlement" of the controversy between the railways and their train service employees. Representative Adamson has introduced a bill in Congress to establish an absolute eight-hour day in train service. The act which was passed a few months ago, and which also bears his name, merely makes eight hours the basis for reckoning a day's wage. Under the legislation which he proposes train service employees would be prohibited from being kept at work more than eight consecutive hours without the consent of the Interstate Commerce Commission. In addition, his new bill prohibits strikes or lock-outs in train service without previous investigation on behalf of the public.

The introduction of this bill must raise forcibly in the minds of the members of the railway brotherhoods, and especially in those of their leaders, the question of what they have gained by refusing to arbitrate their differences with the railways, and what they can hope to gain by continuing to do so. It is now about a year since their demands were presented to the roads. If the entire matter had been submitted to arbitration, as was proposed by the companies several months ago, an award would have been rendered before this. It probably would not have been entirely satisfactory to the men, but, judging by past experience, they would have made substantial gains by it. Furthermore, the principle of voluntary arbitration would have been maintained. About the time that the train service employees rejected arbitration the Switchmen's Union of America accepted it. The result is that its members already have received an increase in their wages, and that they are working at many places in the same terminals as members of the Brotherhood of Railroad Trainmen for higher wages than the latter are receiving.

By refusing to accept arbitration the train service brotherhoods have indefinitely postponed the day of settlement of their controversy with the railways. The struggle between them and the roads has been going on for a year, and although it has caused both the men and the companies heavy expense the men have as yet derived no benefit from it. It has resulted in the passage of the Adamson act, a measure which the men, as well as the railways, regard with fear. The men are afraid the Supreme Court will hold it unconstitutional, in which case they will be left in practically the same position they were in when the present controversy began. They are also afraid that if the Supreme Court does hold the law constitutional it will hold that it has abolished the mileage basis of compensation, which is so dear to their hearts. Finally, the men know that if the law is void and they again threaten to strike they may be confronted with legislation establishing an absolute eight-hour day, to which they are as strongly averse as the railway companies, and in addition with legislation which will greatly restrict, if not actually abolish, their right to strike.

The course which the train service employees have followed has been injurious, and may become far more injurious still, to the railway companies. If the Adamson law is upheld it will establish a precedent for arbitrary legislative interference in railway matters which may ultimately do much more harm to the companies than the \$60,000,000 a year increase in expenses which it will cause. If Mr. Adamson's proposed act to establish an absolute eight-hour day were passed it would make it necessary to reconstruct the railways and revolutionize their operating methods to an extent which would probably increase their fixed charges and operating expenses still more than the Adamson eight-hour payday law would.

Meantime, what would be the effect on the train service employees? It is hardly conceivable that if Congress should

pass an absolute eight-hour day law the railways would let it go into effect without contesting its constitutionality in the courts. If such a law were upheld it is hardly conceivable that the railways would apply it so as to establish a maximum eight-hour day without also so applying it so as to require practically all employees to work eight hours a day.

The train employees do not want an actual eight-hour work day any more than the railroads do. But does anybody believe that they would be allowed by law and public opinion to strike against the enforcement of an actual eight-hour day act after they have been telling the public for over a year that an eight-hour day is what they want?

The rejection of the railways' offer of arbitration has been a bad thing for the railways. It has been fully as bad a thing for the train service employees. The employees and their leaders thought that by refusing to arbitrate they could coerce the roads into granting their demands. They know differently now. The railways cannot afford to let them win at that game because to do so would be to establish a precedent which ultimately would ruin the railroads. In the circumstances, is it not about time for the leaders of the brotherhoods to recognize the patent fact that the only way to settle the present controversy and future controversies between them and the railways in a way which will be beneficial to both sides, or, for that matter, to either side, is by arbitration? If the members of the brotherhoods can see where they have gained anything yet by refusing to arbitrate, or where they are likely to gain anything by continuing to do so, their perceptions are keener than those of anybody else in the United States.

## SELLING RAILWAY SUPPLIES ABROAD

**T**HE United States Senate Committee on Interstate Commerce, Senator Newlands chairman, on Friday last began hearings on the Webb bill. This bill, in brief, provides that nothing in the anti-trust laws shall be construed to render illegal "an association entered into for the sole purpose of engaging in export trade and actually engaged solely in such trade, or an agreement made or act done in the course of export trade by such association, provided such association, agreement or act, is not in restraint of trade within the United States." In short, it removes the existing doubt as to the legality of a combination for foreign trade.

The Webb bill was introduced in the house by the chairman of the Judiciary committee, having been drafted originally by the Federal Trade Commission and approved by President Wilson. It passed the house some months ago but failed to receive favorable consideration in the senate for almost no other reason than that it was attached as a rider to the omnibus revenue bill. It has thus far met but little opposition and will surely pass if the legislators are given to understand that American industry is interested in its passage.

It is to be hoped that the bill will receive the favorable attention it deserves. The railway supply houses and railways both have a vital interest in its success. The fact that during 1916, as many foreign as domestic locomotives were ordered shows the possibilities of foreign trade for American railway equipment builders. The builders and specialty manufacturers should leave no stone unturned to enable them to compete in the most efficient way for the foreign business that will follow reconstruction. One of the best helps for effectiveness will be co-operation. A firm that now could not possibly send a representative or attempt to sell in South America could under the proposed legislation join with several other firms in its own or allied lines to place a salesman there. The importers and exporters of France, Germany and Austria are organized and sell as a unit; there is no room for playing off one exporter against another. When

they buy, they buy as one. For instance, although the United States produces by far the larger portion of the world's copper, it is a fact that before the war its price was controlled by a German kartell and that copper was actually selling .8 cents a pound lower abroad than in New York harbor. Consider, too, that these organizations have the sanction of their governments. Ambassador Gerard is quoted as saying that after the war, practically all of Germany's purchasing in foreign markets will be done by the German government itself.

No sane man will be willing to assert now that after the war is over the belligerent countries will be prostrate industrially. Already Italy has increased the production of automobiles four times. England, although having to use female labor, has done wonders in the making of shells and other war supplies, using scientific management, the best machinery, and radically changing her industrial system. What will England, France and others of the belligerents not be able to do after the war when their skilled labor goes back to work and their industrial firms, with the heartiest co-operation of their governments, with export organizations, shipping and banking facilities, strive once more for that business in Europe, South America, Australia and Russia? In short, if American railway supply houses are sufficiently far seeing they will wake up to the possibilities of this bill and do their bit to show their representatives in Congress that they want its passage before it is too late; that is, before the close of the present session.

### THE CASE OF COMMISSIONER DANIELS

IN 1914, just before the war in Europe began, the Interstate Commerce Commission rendered its first decision in the five per cent rate case. It "found that the net operating income of the carriers in Official Classification territory, considered as a whole, is smaller than is demanded in the public interest." It allowed a five per cent increase in Central Freight Association territory, subject to certain qualifications, but denied most of the increases for which the railways asked. Commissioner Daniels dissented. He contended that the evidence showed that the railways should have larger increases in rates. After the war in Europe began the case was reopened and additional advances were granted, Commissioner Daniels writing the opinion.

Mr. Daniels has now been nominated by President Wilson for reappointment. His confirmation is being opposed. As the matter is being considered in executive session, exactly what is being said in the discussion is not known. However, the newspapers give a report of a speech that Senator Cummins of Iowa is said to have made which seems to be authentic. It appears that Mr. Cummins attacked Commissioner Daniels solely on the ground that he had favored and was chiefly responsible for the advance in freight rates granted two years ago. He is reported to have said that the present earnings of the railways show that the advance in rates was not needed. But neither Commissioner Daniels nor anybody else foresaw or could foresee two years ago what the earnings of the railways would be in 1916-1917. The record of the immediately preceding years showed that the percentage of net operating income on investment in road and equipment was declining. The percentages earned in the years 1910-1915 by the railways of the United States as a whole were as follows: 1910, 5.65; 1911, 4.77; 1912, 4.52; 1913, 4.87; 1914, 3.87; 1915, 3.96. Furthermore, everybody knows that the present earnings, both gross and net, are not only the result of a sudden and unexpected increase in traffic, but that they are abnormal.

The attack upon Commissioner Daniels has, however, a more serious aspect than any injustice to him which it may involve. It is now 10½ years since the Interstate Commerce Commission was reorganized under the Hepburn Act. Since that time it has made many reductions in rates and

granted a few advances in them. Never in all this time has the reappointment of any member of it been opposed because he had favored a reduction of rates or opposed an advance in them; and this in spite of the fact that during the period when the commission was steadily reducing rates and refusing to grant advances the development of the railways of the United States was slowing down, until in 1915 it reached the lowest ebb since the Civil War. On the other hand, because he favored advances in rates it is now contended that Mr. Daniels is not fit to sit any longer upon the Interstate Commerce Commission.

Suppose that the attack upon him is successful. The spokesmen of the railways have been contending before the Newlands committee that one of the main troubles with our whole policy of regulation is that it is one-sided; that it is destructive, not constructive; repressive, but never helpful. If members of the commission are to be marked for slaughter because they may, under certain conditions, favor increases in rates, will this not be notice to railway managements and to investors that the Senate of the United States favors, and will insist upon, a continuance of the one-sided policy of destruction and repression? What is bound to be the effect of the serving of this notice upon investment in railways and upon the needed expansion of their facilities?

It may be said that refusal on the part of the Senate to confirm Mr. Daniels would not mean it was opposed to all increases in rates, but merely to increases in rates under the particular conditions under which Mr. Daniels happened to favor them. But this would simply mean that the Senate puts its judgment above that of the commission as to what is reasonable regulation. Why was the commission created? Upon the theory that such a body would be better equipped and situated to regulate rates than Congress itself. This necessarily involved the assumption that in some cases the commission's judgment as to what was reasonable and fair might differ from that of Congress. If, however, every time a member of the commission happens to differ from the Senate his official head is to be cut off it will be a matter of but a short time until the commission will be composed entirely of men who before they decide rate cases will run to the Senate to find out how they shall decide them. The Senate, not the commission, will then be the real regulating body. Other members of the commission besides Mr. Daniels have favored increases in rates. Are they, also, to be retired as fast as their terms expire?

If attacks in Congress such as that now being made on Commissioner Daniels succeed, it will be only a matter of time until our system of federal regulation will be rendered as unfair and harmful as regulation in most of the states has become. The Interstate Commerce Commission will not and cannot perform its duties with fairness, ability and public spirit unless it is composed of men of ability and courage; and men of ability and courage will not accept appointment upon it with the knowledge that if their expert conclusions as to what is reasonable and fair do not coincide with the inexpert conclusions of members of the Senate they will be guillotined at the first opportunity.

Furthermore, the important fact should not be overlooked that if attacks such as this are made upon members of the Interstate Commerce Commission for the way it regulates rates, they could also be made, under government ownership, on the members of a board which might be created to manage the railways; that if such attacks when directed against members of a regulating board can succeed they could, also, if directed against members of a managing board succeed equally well; and that as their success, when directed against a regulating body, is certain to destroy the fairness and efficiency of regulation, so their success, if directed against the members of a board created to manage government railways, would be certain to destroy the efficiency of government management.

The attack upon Commissioner Daniels is actuated by

that greatest curse of democracies, "politics"; and when politics of this kind constantly is injected into government regulation of railways, what blind folly it is to contend that it would be excluded from government management of railways!

### MISSOURI, KANSAS & TEXAS

IN the four months since June 30, 1916, the Missouri, Kansas & Texas earnings have shown a 26 per cent increase over the corresponding four months of the previous fiscal year. They were at the highest rate in the history of the property, being 21 per cent higher than the corresponding period of 1914 and 16 per cent higher than the corresponding period of 1913, the two best previous years. The report which has been made for the bankers who have undertaken the reorganization of the Missouri, Kansas & Texas attributes the receivership to inadequacy of gross earnings and excessive fixed charges and to the nature of the mortgages securing outstanding bonds which made new financing expensive and clumsy. Before the present management took the property it had, according to the bankers' report, been worn pretty well threadbare. The new management counted on an improvement in operating methods, an increase in business to provide funds for taking up deferred maintenance and to thus lay the basis for an improvement in credit which would permit more economical financing of the capital needs of the property. The steady increase in gross earnings did not materialize and the improvement in operating methods was in part offset by extraordinary bad luck in the way of storms and washouts and by the fact that there was an amount of deferred maintenance which was probably larger than had been estimated. In the fiscal year ended June 30, 1916, net earning capacity touched the low mark. Floods and heavy rainfall occurred at intervals throughout the year; the cotton crop in Texas and Oklahoma was only two-thirds of the crop of the previous year, and the production of crude petroleum was largely reduced and a further decrease in revenue for the Katy from this source was made by the competition of new pipe lines.

Total operating revenues in 1916 amounted to \$32,486,000, a decrease as compared with the previous year of \$413,000, or about 1 per cent. Operating expenses amounted to \$25,794,000, an increase of \$2,827,000, or 12 per cent. Had the company paid all of its interest charges there would have been a deficit for the year of \$1,873,000. The entire increase in operating expenses represents larger expenditures for maintenance. In the two years previous to the receivership C. E. Schaff, who was then operating the property as president of the company and is now operating it as receiver, necessarily had to so adjust maintenance expenditures to earnings as to leave sufficient net for the payment of interest charges; but after the receivership had taken place the management was free to defer interest payments and to spend very much larger sums on the upkeep of track and structures and on repairs to equipment.

In 1916, \$6,735,000 was spent for maintenance of way and structures, an increase over the expenditures in 1915 of \$2,232,000, or almost 50 per cent. In 1916 \$596,000 was spent for care of roadway, as against \$205,000 in the previous year; \$806,000 was spent for bridges, trestles and culverts, as against \$445,000 in the previous year; \$372,000 was spent for track material other than ties and rails, as against \$138,000 in the previous year; \$241,000 was spent for ballast, as against \$57,000 in the previous year; \$103,000 was spent for small tools and supplies, as against \$57,000 in the previous year. The bridge over the North Canadian, South Canadian, Verdigris, Red and Arkansas rivers have been rebuilt, part of the cost being chargeable to maintenance and part to additions and betterments. There was 385 miles of track rebalasted (maintenance) and 116 miles of new ballast applied (additional property investment).

Besides the increase in expenditures for maintenance there was \$1,627,000 spent for additions and betterments to roadway and structures. In the bankers' report it is estimated that 1,100 miles of track of the Missouri, Kansas & Texas is in good physical condition, 600 miles in fair condition and 1,850 miles unballasted and in poor condition.

In 1916, \$5,864,000 was charged for maintenance of equipment, an increase over 1915 of \$1,285,000. A higher rate of charges for depreciation accounts for \$203,000 of the increase in maintenance of equipment, and the remainder is accounted for by much more liberal expenditures on repairs of locomotives and freight cars and by an increase in charges for retirements of locomotives of \$103,000. The depreciation rate which has been adopted by the Missouri, Kansas & Texas is 2 per cent. This is not as high as a rich road like the Pennsylvania has adopted, but is as near as can be figured commensurate with the facts for a road like the Missouri, Kansas & Texas. During the year 586 locomotives were rebuilt or given general repairs, and of these, 57 had new fireboxes and 18 were equipped with superheaters. In June and July the work of giving equipment a thorough overhauling was still going on. On June 30 120 locomotives, or 17.7 per cent of the total owned, were undergoing or awaiting heavy repairs. The following table shows the amount spent for repairs of equipment per unit of equipment:

	1916	1915
Locomotives .....	\$2,793	\$2,508
Passenger cars .....	888	658
Freight and miscellaneous.....	81	60

The retirement of obsolete equipment was carried on more drastically than even in 1915. In 1915 18 locomotives, 5 passenger cars and 1,049 freight cars were retired; in 1916 38 locomotives, 62 passenger cars and 1,280 freight cars were retired. During the year there were 35 new Mikados and 12 new Pacific type locomotives put into service, so that now the Missouri, Kansas & Texas has in service 105 Mikados averaging 296,000 lb. total weight, and 55,547 lb. tractive power. The older locomotives in service consist of 70 Consolidations of 35,133 lb. average tractive power, and 204 Moguls of 28,864 lb. tractive power. In passenger service there are now 39 Pacific type locomotives with an average tractive power of 36,194 lb.; 87 Ten-Wheel locomotives, with an average tractive power of 24,073 lb., and 32 Eight-Wheel locomotives, with an average tractive power of 15,402 lb.

The reduction that has been made in transportation expenses in the last three years is noteworthy. In 1914 transportation expenses amounted to \$12,409,000; in 1915, to \$12,080,000; in 1916, to \$11,224,000. The ratio of transportation expenses to operating revenues was 38.41 in 1914, 36.15 in 1915 and 34.42 in 1916. If the progressive reduction of the ratio of transportation expenses to gross were continued this year so that this ratio would be in the neighborhood of 32 per cent, and the present rate of increase of gross continued through the year, the Missouri, Kansas & Texas, even if it spent as large amounts this year as it did in the year ended June 30, 1916, for maintenance, would have a surplus, after interest charges, of approximately \$5,000,000. This is the hopeful aspect of the possibilities of successful reorganization of the finances of the property.

In 1916 the total ton mileage of revenue freight was 2,173,152,000, a decrease of 90,630,000, or 4 per cent. The passengers carried one mile totaled 374,312,000, an increase of 15,681,000, or 4.4 per cent. Freight and mixed train mileage totaled 6,734,000, a decrease of 565,000, or 7.7 per cent, and passenger train mileage, including mixed, amounted to 7,620,000, an increase of 267,000, or 3.6 per cent. The total trainload of freight in 1916 averaged 391 tons, an increase of 27 tons, or 7.3 per cent, over 1915. Carloading was not quite as good in 1916 as in 1915, the average tons per loaded car, including company freight, being 19.93 as against 20.11 in 1915, a decrease of less

than 1 per cent. The percentage of empty car mileage was considerably less in 1916 than in 1915. In 1916 it was 33.56; in 1915, 38.78.

At the end of the year there was on hand \$1,629,000 cash and \$2,013,000 loans and bills payable.

The following table shows the principal figures for operation in 1916 as compared with 1915:

	1916	1915
Average mileage operated.....	3,865	3,865
Freight revenue .....	\$21,697,723	\$22,397,364
Passenger revenue .....	8,321,250	8,096,063

## NEW BOOKS

*The Preservation of Structural Timber* (Second Edition). By Howard F. Weiss, Director United States Forest Products Laboratory, Madison, Wis. 352 pages, 90 illustrations, 6 in. by 9 in. Bound in cloth. Published by the McGraw-Hill Book Co., New York. Price \$3.

The use of timber has received increasing emphasis during the past two years owing to the scarcity and increased price of other construction materials. For this reason this book is of particular interest at the present time. In the two years since the appearance of the first edition this book has estab-



The Missouri, Kansas & Texas

Total operating revenue.....	32,485,508	32,898,759
Maintenance of way and structures...	6,734,992	4,502,567
Maintenance of equipment.....	5,864,189	4,579,464
Traffic expenses .....	692,262	657,215
Transportation expenses .....	11,223,773	12,080,328
General expenses .....	1,122,023	1,037,434
Total operating expenses.....	25,794,345	22,967,592
Taxes .....	1,650,167	1,327,871
Operating income .....	5,040,995	8,603,296
Gross income .....	5,405,805	8,818,130
Net income .....	1,873,417*	1,474,895

\*Loss after deducting \$3,594,263 interest due but not paid by the receiver.

lished a place for itself as an authority in the field it covers. In the second edition the author has added a considerable amount of new data on the durability of treated and untreated timbers and regarding the rendering of wood fire resistant. This information is of practical value at this time when many engineers are using wood in increasing quantities for construction purposes. As with the first edition the book is well printed and illustrated freely.

## Letters to the Editor

### DISTRIBUTION OF LOADING ON TRAINS

HULL, P. O.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

In these days when maximum tonnage is becoming a goal towards which operating officers are striving, great effort has been and is being made to determine certain relations existing between the variable elements affecting train resistance. Apparently little research, however, has been made as to the distribution of loads and empties and its effect on the hauling capacity of the locomotive. While on the face of it this matter appears to involve solely considerations of drawbar stress and its distribution throughout the train, yet it cannot be denied (and this statement will, I think, be backed up by every experienced conductor and engineer) that the hauling capacity of a given locomotive on a given division is very materially affected by the distribution of its loads in the train. It is not uncommon to hear of conductors who, when having difficulty in getting their train over the road, have deliberately switched their loads to the front of the train after which no further difficulty was experienced in making the haul. Since this first came to my notice I have made it a point to question every experienced conductor that I meet and they all regard this as axiomatic. Each one has a different explanation but their experience has taught them all the same thing.

If it is true that an engine can haul more over a division when the loads and heavy cars are at the front of the train than otherwise, why is it that this matter has been apparently little investigated? It seems to me that this subject would at least be worthy of discussion and if this is so some very interesting points might arise in connection therewith.

E. L. SCHELLENS,

Transportation Student, Canadian Pacific.

### SPEED RECORDERS AND FUEL ECONOMY

FORT WORTH, Tex.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

The paper on "Fuel Economy and the Transportation Officer" presented by W. H. Averell, at the last annual convention of the International Railway Fuel Association and abstracted in the *Railway Age Gazette* of May 26, page 1121, shows the need of means for placing some responsibility for waste of fuel on the transportation department. This can very conveniently and easily be done by means of a reliable speed recorder placed on every locomotive. This recorder should make a dependable record of each trip from start to finish, indicating every minute of delay, and show at what points on the road all the slow-downs and stops are made. With the aid of such an instrument it would be possible to check the performance of each locomotive and place the responsibility for all delays on the proper parties. Efficient time cards would result from its use.

There seldom is a time card made wherein fuel economy has been given a thought. With a speed recorder it will be possible to make intelligent schedules from the information obtained from test runs, as the most economical speeds for various parts of the run will be shown. Furthermore, an accurate delay report will be available which will place the responsibility on the proper individual and department and thus eliminate the practice of "shifting the responsibility." By consulting the speed recorder record and delay reports the general manager's office will know just where to look for the cause of the delays.

Few seem to appreciate the fact that the engine crew has

no control over the amount of fuel consumed in excess of that required to move the train between stations on schedule time. After the economical speed between stations and the proper amount of fuel required to handle the trains over definite districts has been determined; then, and only then, will fuel economy have the support of all the departments and individuals. The engine crews are not the only ones to be educated in the matter of fuel economy. The design of fire-boxes, fire doors, and spring rigging, which is responsible for poor riding engines all contribute toward the economical use of fuel as well as the way the trains are handled by the despatchers. Following are a few "Don'ts" on fuel economy:

Don't fail to educate all concerned in fuel consumption instead of just the engine crews.

Don't create conditions that prevent the economical use of fuel.

Don't overlook the fact that engine crews are observing, if not educated.

Don't fail to show them that not only they, but others as well, are held responsible for fuel economy.

Don't forget that the speed recorder will furnish reliable information regarding the waste of fuel.

"A LOCOMOTIVE ENGINEER."

### GET TOGETHER AND DO SOME THINKING

LAS VEGAS, N. M.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:—

Your editorial on "The Fixed Price For a Product" well deserves first place on the editorial page as I know of nothing that could interest your average railway reader more. Surely the farmer is the last person at the present time who should complain of prices. He raises his own living and sells the wage earner the foodstuff and the clothing that he must have in order to live and the wage earner is compelled to pay the price that is asked. I can look back a few short years and see the last generation of farmers, many of whom are still living, selling corn in Kansas for ten cents a bushel, and also burning it for fuel because it was much cheaper than coal or wood. Railroads were 20 to 30 miles away and it was a two-day journey to market. Next the railroad came and with it prosperity for the farmer. Lands increased in value from a few dollars an acre to two hundred dollars an acre. The farmer today makes the journey to the county seat in 40 minutes that the fathers took a day for, and his income per acre for the land is greater in dollars than his father's was in cents. The major portion of this prosperity has not been built up by the farmer but has been thrust upon him in spite of himself. There is no business in the country, least of all a railroad, that could survive the wasteful methods of the average farmer. Today we are in the midst of a car shortage caused by the farmers dumping a crop on the market that they should be prepared to hold. The average farmer usually has one or maybe two wagons. What would he say if he were required to own 20 just because for two days or three in the year he could use them while threshing his grain.

It is so common a thing and so popular to ascribe all the sins of omission and commission to the railroads and none to the rest of the dear public that it is taken as a matter of course that the great Chicago merchant's motto that the customer is always right shall be reversed and the adage now runs that "The railroad is always wrong," and to our shame be it said that as railroad men we yield supinely and do not fight back; nay, we even do more than this and some of us actually aid and abet those who seek ever to enrich themselves at the expense of the revenue from our transportation which is the only thing we have to sell.

We can only commend Mr. Douglas for his zeal but why should not a few men of his stamp arise among the ranks of the railway men to contend for our proper division of the profits of commerce and to show that it is not excessive rates

that is causing high living costs but that the trouble lies elsewhere and that the railroads are not getting a just division. The trouble is there are hundreds of thousands of railway men in the country today who are apathetic or worse; they are not thinking. The public gulps down the statement that the reason this or that is high is on account of high rates and makes no effort to ascertain whether or not the reverse is true.

The railways today need the effective support of an united popular approval and I believe that an advertising campaign going into details of operation, especially of rates, would be of a vast deal of benefit and it might show to Mr. Douglas and the consumers of the farmer's products that many other lines of human activity are suffering more discrimination than is the farmer and that there is no industry that is suffering the discriminations the railroads have to suffer.

T. T. RYAN,

Division Foreman, A. T. & S. F.

## FREIGHT CAR SILL CONSTRUCTION

NEW YORK, N. Y.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Rule 1B of the Committee on Car Construction adopted as recommended practice by the M. C. B. Association in 1914 requires that the center sill construction of steel freight cars thereafter built "shall have at least 24 sq. in. in section area, and that the ratio of unit stress to end-load shall not exceed 0.06." It would doubtless be interesting to many people to know to what extent this particular recommended practice has been followed in the design of steel freight cars built since 1914.

The writer, through his connection with a corporation engaged in the design, manufacture and sale of draft gear attachments, has had frequent occasion to examine and check the design of center-sill construction for strength and conformity with M. C. B. recommended practice as above set forth, and the result of these investigations would seem to indicate a surprising indifference on the part of many railroad designers of freight equipment to a definite M. C. B. recommended practice adopted after a most careful consideration of service conditions.

A recent appointee to the position of mechanical engineer in charge of car design on one of our largest railroad properties had occasion shortly after assuming office to investigate the failure by buckling and cracking of draft sills under several classes of freight equipment, none of the cars included having been in service three years. He was able to show his superior officer the following figures as proof that the inadequate designs were responsible for these failures:

Freight car class	A	B	C
Section area of draft sills at critical point (sq. in.)	18.54	23.24	11.40
Ratio of unit stress to end-load	0.12	0.11	0.14
Fiber stress under end-load of 250,000 lb.—			
Direct compression (lb. per sq. in.)	13,480	10,760	21,930
Bending (lb. per sq. in.)	16,520	16,740	13,070
Total stress (lb. per sq. in.)	30,000	27,500	35,000

It will be noted that in every instance save one "the ratio of unit-stress to end-load" is over double the M. C. B. specified requirement of 0.06, and under an assumed end-load of 250,000 lb. (the committee's very moderate basis for its recommended practice) the material in the draft sills except in one case is strained up to and beyond its elastic limit, so that what happened was a natural development from overstrained material. The sectional area for cars designated as class B was practically within the M. C. B. requirement, but the position of center line of draft with respect to the neutral axis was such as to develop a bending stress sufficient to bring the total up to 27,500 lb. per sq. in.

The formula representing "ratio of unit stress to end force" is:  $\frac{1}{A} \times \frac{X}{SM}$ , in which A=area; X=eccentricity of end-force; SM=section modulus for bottom fibers of draft

sills. With the marked tendency to increase the capacity of draft gears, it would seem incumbent upon car designers to figure the end-load of 250,000 lb. as concentrated on the center line of coupler, and X as the distance from center line of draft to neutral axis. In practically all cases of steel freight car construction the center line of draft is below the neutral axis. Hence unit fiber stress is represented by the following formulae:

$$\begin{aligned} \text{For top fibers:} \\ \text{Total unit fiber stress} &= \frac{\text{End-force}}{\text{Area}} - \frac{\text{Moment of End-force}}{\text{Sec. Mod. at top fibers}} \\ \text{For bottom fibers:} \\ \text{Total unit fiber stress} &= \frac{\text{End-force}}{\text{Area}} + \frac{\text{Moment of End-force}}{\text{Sec. Mod. at bottom fibers}} \end{aligned}$$

The maximum unit fiber stress is obviously represented by second formula, because the compression stress from direct pressure is, in the bottom fibers, augmented by the compression stress resulting from moment of end-force.

The following figures are obtained from actual designs of all-steel and steel underframe freight equipment recently purchased and are illuminating as to the indifference in some quarters, to Master Car Builders' Recommended Practice.

Type of car	Gondola	Hopper	Hopper
Capacity of car	50-ton	50-ton	50-ton
Section area of draft sills at critical point (sq. in.)	16.7	16.6	16.7
Ratio of unit stress to end-load	0.13	0.135	0.12
Fiber stress under end-load of 250,000 lb.—			
Direct compression (lb. per sq. in.)	14,970	15,060	14,970
Bending (lb. per sq. in.)	17,530	18,769	15,030
Total stress (lb. per sq. in.)	32,500	33,750	30,000

It has been frequently stated by those well informed on the subject that 75 per cent of freight car maintenance is attributable to damage to draft gear, draft attachments and center construction. The ever-increasing strains on draft gear and draft attachments have in recent years been met to a great extent by increased strength and capacity of draft gears and increased strength of the attachments, but in many instances this is not true of the center construction despite the definitely announced and printed M. C. B. Recommended Practice with respect thereto.

Committees are appointed by the M. C. B. Association to formulate recommended practices presumably after exhaustive investigation of the subjects assigned for consideration, and following their adoption by the Association it would seem a privilege and duty to comply with the recommended practices, particularly those the disregard of which invites failure of some vital part of the car construction with consequent largely increased car maintenance. It may be stated by many railroad designers of freight cars that their desire and intention to follow the particular recommended practice referred to is disregarded by the acceptance by "The Management" of an alternate construction of inferior design and lower price presented by a car builder. This is doubtless true in many cases, but a car builder selling cars in competition with other car builders cannot very well be censured for offering a design, the important elements of which are disclosed by drawings and open for analysis if desired. Such procedure only emphasizes the fact that where cars are not built to railroad design, and an inferior car builder's design is accepted, the railroad management is at fault either in not having it checked for adequate strength at vital points or in overriding its mechanical department.

A. H. WESTON.

**ELECTRIFICATION OF LONDON SUBURBAN LINES.**—The electrification of the Claygate portion of the London & South-Western Railway suburban lines has been completed, and a half-hourly service of electric trains between Claygate and Waterloo, covering the journey in 29 minutes, has been begun. There are, however, extra steam trains morning and evening.

# Revision of Billing at Large Terminal Points

Reductions of Under and Overcharge Claims by Revision  
Bureaus of Auditing Department at Large Local Offices

By A. P. Ottarson

Comptroller Nashville, Chattanooga & St. Louis, Nashville, Tennessee.

At its 1911 meeting, the American Association of Freight Agents had before it the subject Auditor's Revision of Billing in Local Offices at Large Terminals. No definite action was taken at that meeting but the subject was again brought up for discussion at the 1915 meeting and a resolution adopted referring it to the Association of American Railway Accounting Officers. In passing the subject along to the accounting association, the local agents took occasion to express the opinion that the revision of way bills by auditing departments in local offices would be economical and, further, that where tried out it had proved to be entirely satisfactory. This opinion was evidently expressed of a plan which substitutes for the agent's revision that of the auditor. Whether the Accounting Association endorsed this plan seems somewhat in doubt. The resolution adopted by that body reads in part as follows:

Resolved, that this association recommends the establishment at principal stations of bureaus under direct jurisdiction of the accounting department for the purpose of effecting a complete revision of both inbound and outbound waybills, and be it

Further resolved, that at stations where no accounting department revision bureau is located, the station forces should be required to revise both outbound and inbound waybills, and be it

Further resolved, that the plan herein proposed should be considered supplementary to the general office revision work.

It will be noted that the revision approved by the Accounting Association is to be "supplementary to the general office revision work" and this may mean any one of several things. If it means that the revision of the same waybill is to be made in both offices, then the economy of the plan is difficult to see.

The Nashville, Chattanooga & St. Louis first inaugurated the audit office revision in junction agencies at Atlanta, Ga., in May, 1911, at the suggestion of the present agent at that point who had advocated it for a number of years. Subsequently the plan was extended to Chattanooga, Tenn., and Memphis. At Atlanta the entire rate work at the station was turned over to a revising bureau of four clerks, one of whom served as chief rate clerk reporting to the auditor of receipts, all of these clerks being on the auditor's payroll. With the extension of interline billing in connection with the recent fourth section revision of rates in the Southeast, a large number of waybills formerly taken into the Atlanta agent's account were made overhead and the rate force was reduced by one clerk.

The revising clerks in the agent's office are subject to the rules and regulations applying to the agency except that their working hours are specially arranged to accord with the receipt of waybills or arrival of trains. It is necessary, for instance, to have a clerk on hand Sundays and this Sunday service is performed alternately, the men being given a week-day off in lieu of Sunday. One clerk works two hours each night to handle late arrivals and is granted an equivalent two hours in the afternoon. The fear has been expressed that this would result in friction and jealousy between the agent's forces and the bureau or the auditor's force. The answer to this is that during five and a half years of operation there has not been the slightest friction and the agent today is just as enthusiastically in favor of the plan as before it was inaugurated.

The three rate clerks forming the bureau rate all shipping tickets, revise all freight bills received from connecting lines and all waybills received which are to be charged to the

station account. Overhead waybills handled at the agency but not taken into account, are revised in the general office. When errors are detected in connecting line freight bills they are handled by telephone for correction and in a great majority of cases these corrections are made before the shipments are rebilled. The inbound waybills go direct to the rate bureau where they are revised, the entire force devoting its morning hours to the inbound billing in order that the transfer clerks can have the waybills for checking the freight.

An overcharge is just as obnoxious to these bureaus as an undercharge and in the test of efficiency of the rate clerks the failure to cut out an overcharge counts just as seriously as overlooking an undercharge. In September the Atlanta bureau revised 10,780 inbound waybills on which 2,350 corrections were made. This is a low percentage of efficiency on the part of the forwarding agencies but it is entirely representative, the monthly percentage of errors seldom falling below 20. In the same month the bureau rated 5,026 local shipping tickets and 1,800 connecting line freight bills. The outbound waybills, after being made by the agent's machine operators, are read back by the bureau for errors in transcribing.

In considering this subject there are two questions which naturally arise—does the plan increase the efficiency, thereby conserving the revenue, and does it reduce the expense? It certainly does the latter and, in the opinion of the agents who have tried both methods, it just as certainly increases the efficiency, "practically insuring," as one agent puts it, "the collection of the correct amount of revenue, thereby reducing overcharge claims," etc.

To appreciate the value of the bureau plan, one must follow the course of a waybill through the accounts of both the auditor and the agent. It must be understood that all carriers do not have the same system of accounting. For accountants to understand the illustrations following, it is sufficient to know that the Nashville, Chattanooga & St. Louis is on the monthly system of accounting, using what is known as the "forwarded basis" on the local billing and the "received basis" on the interline billing.

Under the old method a \$50 or \$60-bill clerk prepared a waybill in the forwarding office, an \$80-rate clerk revised the same waybill in the receiving agency and a \$100-revising clerk revised it again in the auditor's office. Naturally the auditor's clerk at \$100 was supposed to be the most efficient and usually he proved to be. The waybill started on its way erroneously rated or calculated; was revised by the agent's rate clerk and charged and delivered to a connecting line. The next day a correction came from the auditor's rate expert calling for, say, 50 cents additional freight charges, whereupon the agent recorded a debit against himself of 50 cents and proceeded to collect, through an extended correspondence, from his next connection. This, in many cases, was a long and tedious procedure, especially if the shipment had been delivered to a consignee who belonged to that class who cannot see the sense or propriety of paying an undercharge to a railroad.

The number of these differences in the accounts of some agencies and the volume of correspondence entailed in their adjustment is appalling. One agent writes: "I well recollect that when I was station accountant at this agency and when the revision was done by agency force, I dreaded to see the

close of a month and face the enormous number of unadjusted items which had to be taken into account. Such conditions do not now prevail." If the shipment instead of being delivered to a connecting line was for delivery to a local consignee the situation was almost as bad, the work imposed on a cashier to collect an undercharge or refund an overcharge being fully as great as the work involved in the original settlement. The additional work created by these corrections made subsequent to the original settlement of waybills extended over almost the entire force of the agency, besides complicating the accounts and creating additional work at the end of the month when the reports were compiled and forwarded to the auditor.

The bureau plan has for its genesis the idea that if this rate clerk in the auditor's office is competent finally to pass on the correctness of a rate or a division of a rate, he should be able to apply the rate just as competently at the outset; thus reversing the procedure and eliminating the conflict. Having accepted that idea, the only thing left to be done was to arrange to place this rate expert where he could not only rate the outbound bill before it started on its way but where he could pass upon its correctness immediately on receipt of the inbound waybill and before the agent could take it into account with the connecting line or settle with the consignee.

Reverting to the question of expense, an immediate reduction in the agent's payroll on the inauguration of the bureau method would hardly be possible because the relief is so widely spread over the force and because of the necessity of using more efficient men in many instances than the agent has been accustomed to use on the revising work. The salaries of the men used for this rate work in the agent's office under the auditor's jurisdiction will doubtless in most cases be somewhat increased but the competent agent will know that the introduction of this method has inevitably created slack throughout the office and will so rearrange his assignments of work that this slack can be gathered together and an actual reduction in the payroll effected.

In the auditor's office there should be an immediate reduction in the payroll equivalent to one man for about every 10,000 waybills placed under the bureau plan. Besides the increased efficiency and reduction in the expense, there are other benefits to be derived which are not unimportant. One of the by-products is a better feeling on the part of the consignees, who are less annoyed with notices to call and collect overcharges, in many cases small but which require refund in order to carry out the mandate of the Government that no higher than the tariff rates must be charged. They are also relieved of numerous visits of the agent's collectors with demands for additional freight charges, these being in many cases rather small but necessary to place the agent's account in balance and to comply with the law.

From some of our shippers who have had reason to notice the working of the plan, we have had letters commending it and calling attention to the reduction in the number of claims filed. It hardly seems necessary to add that all the claims made for the bureau plan are predicated not only on the employment of efficient rate clerks but on the presumption of the necessary team work.

The revision of billing by the auditor in the agent's office can no longer be termed an innovation. I look for a further and rapid spread with perhaps some additional refinements of the plan now in operation, possibly the establishment of clearing house plans in large centers to eliminate duplication of the revision on the part of the several carriers handling the same shipment and waybill.

**SOUTH AFRICAN RAILWAY MEN IN FRANCE.**—The South African Government railways are raising a company, consisting of 3 officers and 286 men of all grades from station-masters to firemen, for operating railways in France.

## HOW ABOUT THE SHOP MAN?

By Harvey DeWitt Wolcomb

On top of the recent agitation with certain classes of railroad employees for a reduction of working hours, because of arduous duties, some of the large railroad interests are advertising the superiority of their routes giving much credit to their enginemen for the safe and perfect operation of their systems. No mention is made of the poor shop man who has spent longer hours and at less pay, to prepare these safe movements. We hear much about the "hard worked man" in the operating department, but what about the mechanic in the roundhouse, or the half frozen car repairman on the cripple track, who is unable to make a day's pay in three or four hours of duty, but must stand the bleak winter elements for ten hours in order to demand his ten hours' pay?

These are the heroes of the railroad; these obscure, unknown men, doing their duty practically three hundred days out of the year, and each day made up of ten hours' continuous service in all kinds of weather, under all kinds of conditions.

Responsibility depends more on those who prepare a safe route than on those who travel that route. The engine inspector in the roundhouse has many and varied duties to perform which requires him to be constantly on the watch for any minute fractures which are liable to occur in the engine frames, driving rods, or motion work. He knows that when a small crack starts, it must be given immediate attention or it will increase till a failure occurs that is liable to result in much loss of property and perhaps life. He does not work on any set schedule but is required to cover just so much ground each day; increasing his speed does not give him any benefit in his wages and is liable to cause him to overlook some important point. He works on the plan of the longer he inspects and the more attention he gives his duties, the better protection he is giving his employer. He does not receive orders to go so far and then stop to look for a fracture but has to make up his own schedule, the success of which is easily recognized by the small number of failures on his division. He cannot offer the old worn out excuse of "hot boxes," "stuck air brakes" or "setting out cars account of low in steam." He is constantly under the eye of his superior who is generally a past master in following up the unnecessary delays of his workmen.

The half frozen car repairman cannot reduce his "rating" because of zero weather, but must produce his share of the work to keep the cars moving. He has records as nearly perfect as those of humans ever become, which he must maintain. His reward—if it may be so considered—after many long years of continuous and efficient service, consists of a promotion to a foremanship, with increased hours of service, responsibility and worry. During all these years while waiting to be given the foremanship, he has cause to worry about his appointment because seniority is not always recognized in his department. His trial trips consist of long years of back breaking work.

A young man who selects any one of the mechanical trades for his life's work may find himself, after a service of 20 or more years, holding a lucrative position of roundhouse foreman, working twelve hours a day, seven days a week, for a salary of about \$100 a month.

A raise in pay would be appreciated by all classes of employees. The shop man realizes that while it is a fact that the accumulation of a competency which will enable one to live in refinement and die in comfort is, of course, a commendable purpose, that such a living should not be demanded under adverse conditions. The average shop man is more loyal to his employer, gives more hours of his life to the service and at less pay; therefore why should he not be given just credit in the safe and successful operation of his road.

# A New Bridge Over the Mississippi River

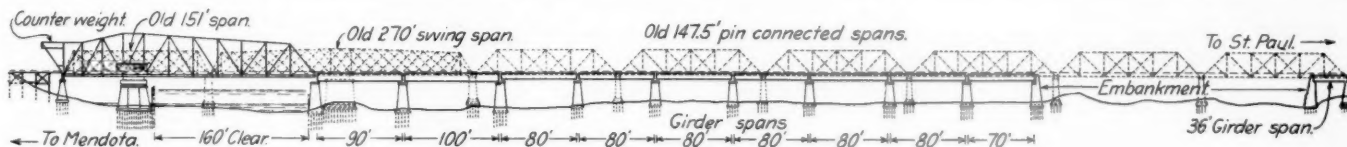
Structure Was Rebuilt Under Traffic, Involving Interesting Erection Methods and Largely Eliminating Falsework

**I**NCREASES in the weight of equipment operated have made necessary the reconstruction of the bridge over the Mississippi river on the line between the Union depot at St. Paul, Minn., and Mendota, which is owned and operated jointly by the Chicago, St. Paul, Minneapolis & Omaha and the Chicago, Milwaukee & St. Paul, and the rebuilding of this structure has recently been completed. The project involved a change in the location of the draw span and the replacement of through truss spans by deck girder spans of shorter length. The work is of special interest because of the methods used in the erection of the superstructure, no interruption to traffic occurring during the progress of the

erected on the original substructure and the work was done under the supervision of C. W. Johnson, then chief engineer and at the present time consulting engineer of the Chicago, St. Paul, Minneapolis & Omaha.

## THE NEW BRIDGE

The layout of the new structure is shown on the accompanying drawings and differs materially from that of the structure it replaced, the principal change being required by the War Department which demanded a clear channel opening of 160 ft. at a location approximately 200 ft. west of the old one. The substructure was entirely replaced and the



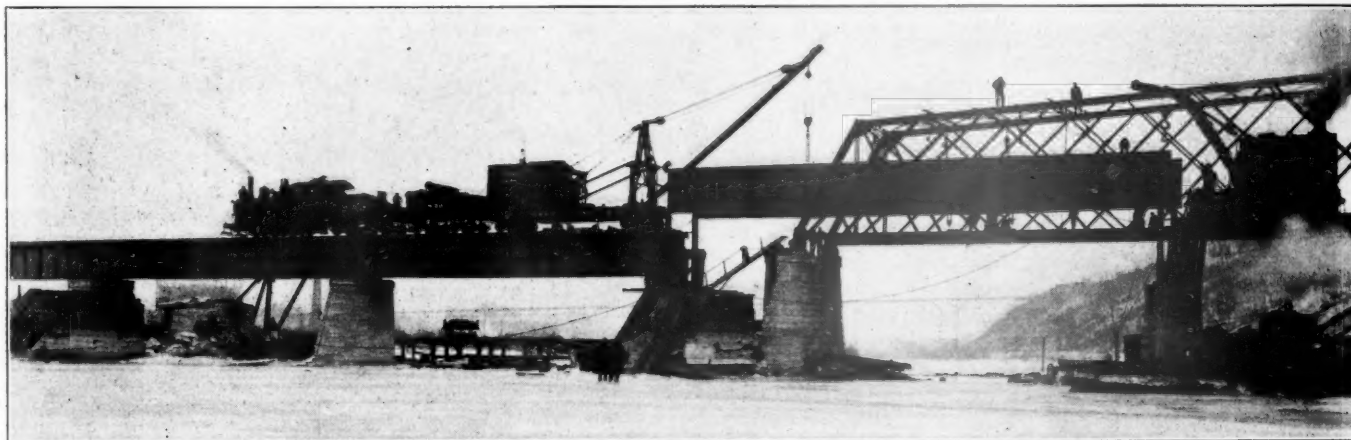
General Elevation of the Bridge

work. Also except in the case of the swing span the erection was accomplished without any falsework.

The new structure is the third to be built at this site. The original bridge was constructed in 1869 by the Milwaukee & St. Paul railway, the superstructure consisting successively from east to west of six 147½-ft. Howe truss spans, a timber swing span 270 ft. long and a 151-ft. Howe truss span, with a pile trestle 1,698 ft. long at the west end. The spans were supported on a limestone masonry substructure resting on pile foundations and timber grillages with the footings for the piers slightly below the river bottom. In 1874 the name of the Milwaukee & St. Paul was changed

span lengths were made considerably shorter, permitting the use of girders in place of trusses. It was also found desirable to fill in portions of each end of the old bridge. The design adopted by the railways and approved by the Secretary of War provided for a length over all of the river bridge proper of 1,002.5 ft. The embankment back of the east abutment is continuous save for an opening at the old east abutment. On the west end a new 760-ft. embankment has been provided which is pierced to allow for undercrossing at Tuttle avenue. The bridge is designed for Cooper's E-60 loading.

As seen in the general elevation, the new bridge consists



Girders of 100-ft. Span Resting on Temporary Bents While Intermediate Pier Is Being Cut Down

to the Chicago, Milwaukee & St. Paul and an adjustment was made whereby the St. Paul & Sioux City became an equal owner of the portion of the line on which the bridge is located. In December, 1880, the last named company was absorbed by the Chicago, St. Paul, Minneapolis & Omaha, which assumed the maintenance of the joint track and bridge. In 1885 the timber swing span was replaced by an iron span 270 ft. long having double intersection riveted trusses and in 1887 and in 1888 all of the Howe truss spans were replaced by iron spans, the 147½-ft. spans by pin connected Pratt truss spans and the 151 ft. span by a riveted double intersection truss span. This second superstructure was

of one 70-ft., six 80-ft., one 100-ft., and one 91-ft. deck plate girder spans and one counterbalanced swing span 185 ft. long. The opening adjoining the old east abutment is made by a 36-ft. plate girder span with a reinforced concrete ballast floor. A pile bridge was constructed over Tuttle avenue with a 20-ft. I-beam span over the roadway. The remaining opening west of the west embankment is provided for by a pile trestle.

## THE DRAW SPAN

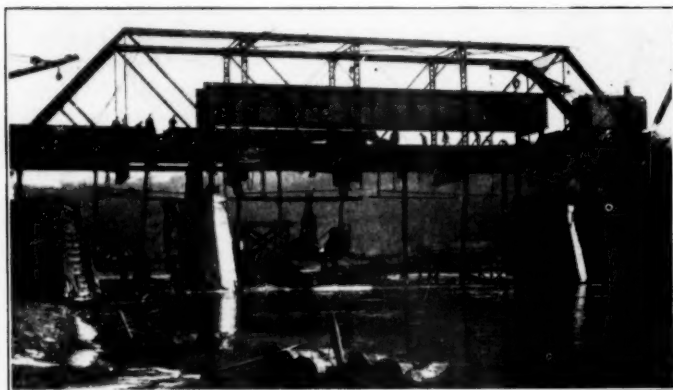
The swing span is of the unsymmetrical or counterbalanced type, consisting of a channel span 175 ft. long and a counter-

weight span 64 ft. 6 in. long joined by a tower over the pivot pier 18 ft. 6 in. long, the distances being measured center to center of panel points. The trusses are riveted throughout except for the eye-bar connections at the top of the tower.

The arrangement of the counterweight is unusual. As shown in one of the accompanying drawings, it consists of concrete arranged in the form of a portal around the end panel of the counterweight arm. Triangular shaped slabs in the plane of each truss were built in place around steel framework in the end panel. A concrete lintel encloses the end strut, thus completing the portal effect. In addition a part of the weight is provided in the place of the top laterals in the form of precast beams and small blocks equipped with handling stirrups to facilitate placing them with a derrick. The small blocks served for final adjustment of the counterweight.

The weight of the span is transmitted to the drum by a system of four loading girders, two directly under the trusses and fabricated as a part of the bottom chords and two running transversely in line with the tower posts. These four loading girders transmit the weight to the drum at eight points in its circumference. The side loading girders are 5 ft. 6 $\frac{3}{4}$  in. deep and the drum is 3 ft. 11 $\frac{1}{2}$  in. deep. The total weight of the draw span is about 500 tons.

The swing span is operated by electric power, which is furnished by the Northern States Power Company as 3-phase,



Erecting One of the 80-ft. Girder Spans

60-cycle, 220-volt alternating current. The bridge is turned by two operating pinions working on a circumferential rack. Each of the pinions is connected through a train of gears to a 30-hp. motor operating at 840 r.p.m. The combined power of the two motors is sufficient to open the bridge in 75 sec. after the ends have been released, but either motor working alone can do this in 1 $\frac{3}{4}$  min. Each separate motor has a controller but the two controllers are interlocked so that one lever may be used to operate both motors to deliver equal pressure to the two pinions, or either motor may be used alone.

The end lifts are of the rocker type operated by a cam shaft. The rail locks are of the mitre joint type, the rails being raised and lowered by cams, and are operated by the end lift machinery so that a single 10-hp. motor at each end of the bridge operates both the rail locks and the end lift. The operator's house is located on the track floor on the north side of the bridge.

#### CONSTRUCTION METHODS

The substructure presented no particular difficulties. The piers and abutments are of mass concrete supported on piles 24 ft. long. The foundations of the new structure were constructed along lines similar to those used in the old bridge but were carried to a somewhat greater depth. The design of the new substructure was based on a knowledge of the conditions in the old and on the results of a series of test

holes which showed coarse sand and gravel to a depth of 80 ft. overlying rock. With the use of a liberal amount of riprap around the piers and abutments erosion is believed to be a rather negligible factor. It was necessary to jet the piles into place.

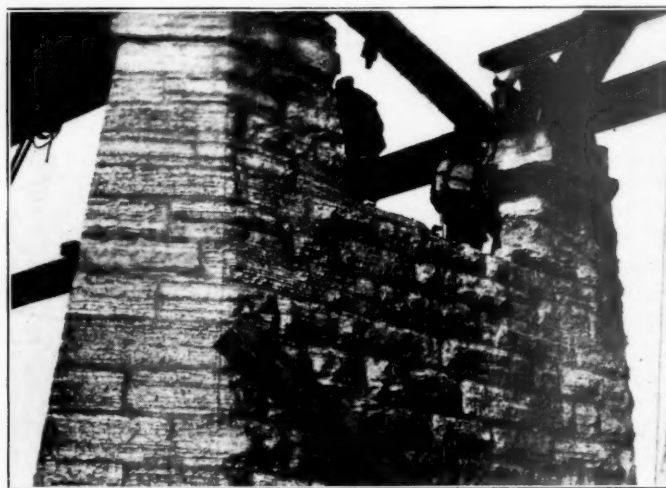
Actual work on the substructure started on August 1, 1915, having been delayed for nearly two months by an unusually high stage of the river. High water again prevailed during September and October and greatly interfered with founda-



The Draw Span in the Open Position

tion work of the piers adjoining the river channel, so that the substructure was not entirely completed until February 1, 1916. Some of the concrete was placed in extremely cold weather, but proper precautions were taken and no damage resulted because of freezing.

The dismantling of the old structure and the erection of the girder spans were handled by the railway company's iron bridge crew. No falsework was used for the erection of the girder span. With the exception of the 91-ft. and 100-ft. spans, the girders of which were placed separately, the two girders of each span were assembled and riveted complete before being put into place. According to the erection program the completed girder span was placed on two flat cars with a derrick car at each end and was hauled out to the final position. The girders were then hoisted a sufficient amount to clear the cars and permit the placing of the cap for a bent or gallow frame under each end of the span. The girders

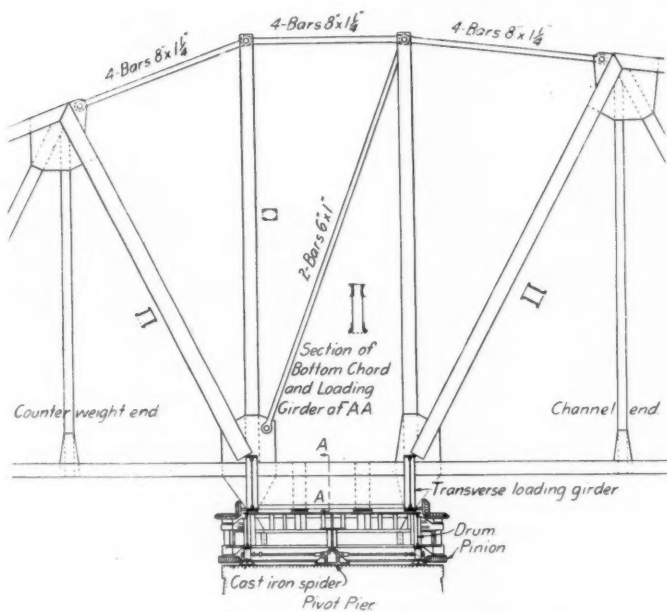


Old Pier Notched to Clear New Girder Span

were then allowed to rest on these bents while the cars were released and the floor of the old span was disconnected and lowered to the ground beneath the bridge. After the completion of this work the derrick cars returned and lifted the span clear of the bents and upon the removal of these bents the span was lowered into place on the piers. The placing of these girder spans consumed an average of two hours and ten minutes, with the addition of one hour and twenty minutes in all cases where the girder spans fouled one of the old piers which had to be notched down to clear the new

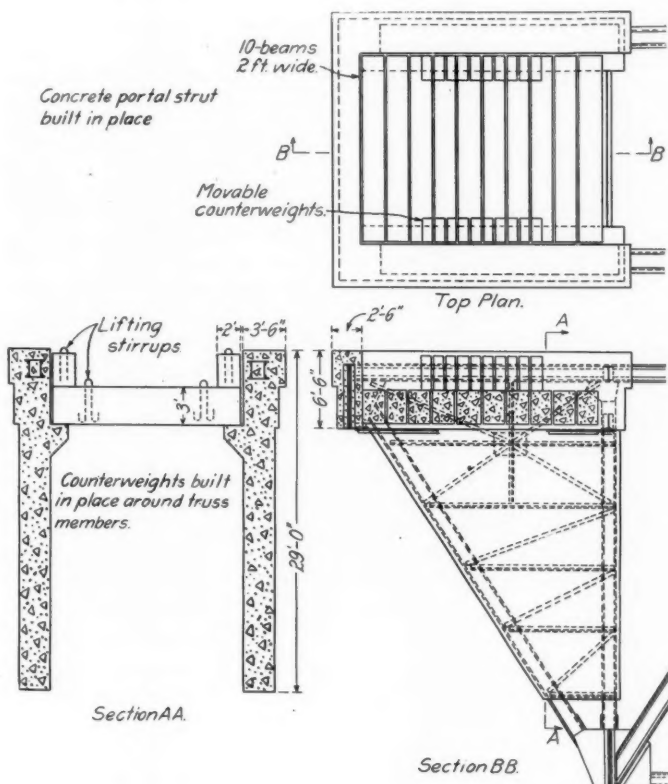
girders as shown in one of the accompanying photographs.

The placing of the new girders was followed by the removal of the old truss spans. This was accomplished with a minimum amount of falsework by supporting the old



Section of Swing Span Over the Pivot Pier

trusses, during the time that they were being cut apart, on cross timbers suspended from the new girders by means of U-bolts. Girders 1 to 7 inclusive were erected between October 24, 1915, and December 6, 1915. Spans numbers



Details of the Reinforced Concrete Counterweight

8 and 9 could not be erected until February, 1916, because the substructure had not been completed. The dismantling of the old spans was started in September, 1915, and completed in March, 1916.

The draw span was erected on falsework consisting of four and five-pile bents spaced from 12 ft. 6 in. to 17 ft. 6 in. center to center. These bents were capped at an elevation low enough to support the bottom chord of the new trusses, the track being carried on pony bents.

#### OTHER FEATURES

A sheer fence was erected on the west side of the river channel, extending north and south for the length of the long arm of the swing span at an angle of 45 deg. with the shore at the upstream end. Breaking ice cut a considerable gap in the corner of the fence in the spring of 1916 and the upstream portion has since been filled in solid with riprap to a height of eight feet above the normal river stage. This additional protection is now considered sufficient safeguard against destruction by ice; in addition the corner of the fence was protected with old rails placed horizontally.

Material for filling the east and west ends of the old bridge as described was obtained from the river bed, north of the bridge by means of a suction dredge. The total amount of filling was 48,000 cu. yd.; the embankments were heavily riprapped on all sides up to a few feet above high water line.

The general design of the bridge was selected jointly by C. F. Loweth, chief engineer of the Chicago, Milwaukee & St. Paul, and H. Rettinghouse, chief engineer of the Chicago, St. Paul, Minneapolis & Omaha, the latter having charge of the preparation of plans and of the construction work. The swing span was designed by I. F. Stern, consulting bridge engineer, Chicago; T. E. Van Meter was assistant engineer in direct charge of the work. The girders were fabricated by the Chicago Bridge & Iron Works, Chicago, and erected by the railway company's forces, who also placed the deck on the entire bridge, these forces being under the direct charge of J. D. Moen, superintendent of bridges and buildings. The swing span was fabricated by the Milwaukee Bridge Company, Milwaukee, which sublet the erection to the Strobel Steel Construction Company, Chicago. The filling of the embankments was contracted for with the LaCrosse Dredging Company, Minneapolis, Minnesota.

#### WASHINGTON CORRESPONDENCE

WASHINGTON, D. C., January 10, 1917.

##### RAILROAD LEGISLATION IN CONGRESS

The controversy over the demands of the train service brotherhoods, who are again talking about striking, took a new turn this week. While arguments on the constitutionality of the Adamson law were being argued in the Supreme Court on Monday by counsel for the railroads and for the government, Chairman Adamson of the House Committee on Interstate and Foreign Commerce was beginning a fight in Congress for a new Adamson law, which he said was for the purpose of making the eight-hour law "court-proof," but which presents an entirely different situation from that created by the law which is now before the court. The new bill, which he introduced in the House on Saturday, is not only intended to prevent strikes but to establish a real eight-hour day, with such exceptions as may be permitted by the Interstate Commerce Commission. It carries out the President's recommendations for a law to prevent strikes by providing that in event of failure to settle a wage controversy by mediation the President shall appoint a board of inquiry to investigate the facts and report a recommendation within 90 days. Pending such report a strike or a lockout would be made unlawful. The bill would also empower the president to take over railroads for military purposes. The provision as to hours of service is proposed as an amendment to the hours of service act and provides that it shall be unlawful to require or permit any employee subject to the act to remain on duty for a longer period than eight hours in any period of 24 hours, but such eight hours' service need

not be consecutive. The Interstate Commerce Commission is authorized after a hearing and for good cause shown, to extend the period within which a common carrier shall comply with the law and in case of a disagreement to "prescribe regulations of or allowance and tolerances for necessary overtime, to be paid for at not exceeding the pro rata of wage per day."

Mr. Adamson has always insisted that the law which bears his name was not a wage law but an hours of service law. The new bill is an eight-hour law in fact, and would only increase wages in certain cases. It takes no more account of the mileage basis than did the law passed last September. Grand Chief Stone of the Brotherhood of Locomotive Engineers, who arrived in Washington on Sunday, announced the opposition of the brotherhoods to it as soon as he saw it.

Mr. Adamson introduced the bill after a conference with the President on January 3. It had been understood that it was proposed to handle the labor legislation as an amendment to a bill now before the Senate but Mr. Adamson said the Senate was too slow because it had attempted to hold hearings before acting. He said that in preparing the new bill he had consulted neither the railroad managers nor the employees but had taken only the public into consideration.

The Senate Committee on Interstate Commerce continued its hearings begun on January 2, on the bills introduced at President Wilson's recommendation to prevent strikes pending an investigation. W. N. Doak, vice president of the Brotherhood of Railroad Trainmen, appeared before the committee on Tuesday in opposition to any measure providing for compulsory investigation before a strike could be called. He argued that the time for investigation would give the railroads an opportunity to fortify themselves against a strike by engaging strike-breakers, etc. The railroads took no part in the hearing.

W. L. Chambers, commissioner of the United States Board of Mediation and Conciliation, told the committee the present arbitration law needs strengthening to provide a better means for enforcing and interpreting arbitration awards, saying that the railroads have an advantage because they have the final determination as to how the awards shall be interpreted on disputed points. He said that in about 90 per cent of the cases the awards are put into effect. He was asked to draft a proposed amendment with the co-operation of the solicitor-general. Mr. Chambers also filed with the committee a lengthy report compiled by the board on arbitration, conciliation and strike laws of various countries.

James A. Emery, representing the National Association of Manufacturers, the National Founders' Association, the National Metal Trades Association and the National Erectors' Association, which he said includes the employers of three or four million men, presented a legal argument to show the duty of Congress to prevent interference with commerce by combinations of labor on the same ground that Congress had regulated combinations of capital. He said the distinction between the two kinds of combinations was political rather than legal.

Ralph M. Easley, chairman of the executive council of the National Civic Federation, said the organization has not yet decided on its official position but that its officers are opposed to compulsory arbitration or investigation and he read from official reports to show that the Canadian industrial disputes act, which represents the plan proposed by the President, has not prevented strikes in Canada except in minor cases easy of adjustment and that when either employees or employers choose to disregard its provisions it has not been enforced. He said that it had not been successful in Canada in important cases and that while it had settled a majority of the disputes the number was less and the number of men involved was less in nine years than in the disputes settled voluntarily in New York City in a year, and that the Newlands law had been successful except upon one occasion. He

thought that a commission appointed by the President and including representatives of both railroads and employees might meet the present dilemma. The Adamson law, he said, was an emergency measure which neither side wanted, but when asked what he would propose to meet the emergency he said he was not prepared to suggest any practical way of preventing strikes. On Monday Andrew Furuseth, president of the seamen's union, addressed the committee urging the right of labor to strike.

#### NEWLANDS COMMITTEE INVESTIGATION EXTENDED

The time for the completion of the investigation into the subjects of railroad regulation and control and government ownership, by the Newlands Joint Committee on Interstate Commerce, has been extended for one year by a vote of both houses of Congress, although the vote of the House was not taken until Tuesday after the committee had been allowed to expire by limitation on Monday.

The Senate on January 5 passed a resolution extending the time of the committee until December 3, 1917, but a resolution for the same purpose met with considerable obstruction in the House. It was originally introduced before the holidays by Chairman Adamson of the House Committee on Interstate and Foreign Commerce, who endeavored to obtain unanimous consent for its consideration, but day after day objection was made by Representative Rayburn of Texas, on the ground that it was intended to delay all railroad legislation, including his bill for the regulation of security issues. Mr. Adamson then on December 23 introduced a resolution for a special rule providing for two hours of debate on the question, which was referred to the rules committee. On January 3, after Representative Rayburn had again objected to unanimous consent on the resolution, President Wilson promptly summoned Representative Henry, chairman of the Rules Committee, to the White House and requested him to secure a report. On January 4, the committee reported the rule but the House defeated it by a vote of 168 to 140.

As originally introduced the resolution carried provisions extending the life of the joint committee from January 8, 1917, to January 14, 1918, increasing the appropriation from \$24,000 to \$40,000, and continuing as a member of the joint committee Representative Cullop of Indiana, who failed of re-election and will not be a member of Congress after March 4. This effort to take care of a "lame duck" aroused the opposition of a number of members to the resolution, while others based their objections on the parliamentary procedure by which the resolution was laid before the House, without a formal report by the Committee on Interstate and Foreign Commerce. There was practically no debate on the merits of the investigation. In urging the extension of time, Mr. Adamson said the committee had been delayed in its work, that it had heard practically only the railroad side of the case and that it would probably require 30 or 40 more working days to complete the investigation. "Working days" presumably does not mean eight-hour days. During November and December the hearings were generally limited to two or three hours a day. In the debate on the rule Representatives Henry, Adamson, Sims and Harrison favored the extension, while it was opposed by Representatives Mann, Lenroot, Rayburn, Moore, Campbell and Bennet. Some of the objections were on the ground of opposition to the expense of investigating committees. Representative Lenroot, of Wisconsin, opposed it on the ground that the investigation would not develop any facts that would do Congress any good and that information on the transportation question might be obtained from the Interstate Commerce Commission. Mr. Bennet, of New York, objected because he said the investigation would kill the Rayburn securities bill. Mr. Sims advocated the passage of the resolution on the ground that it would furnish Congress with information to enable it to act with intelligence in consideration of future legislation.

On the following day the resolution was formally reported

by the Committee on Interstate and Foreign Commerce without the provision for an increased appropriation and leaving out the provision for Representative Cullop, but providing that his place should be filled by the next ranking member of the committee. In this same form it was reported to the Senate by Chairman Newlands of the Committee on Interstate Commerce and promptly passed. On January 6 and on January 8 Mr. Adamson again attempted to get consideration of the resolution in the House but was again blocked by objection by Mr. Rayburn.

The committee, therefore, expired by limitation on Monday and submitted a brief formal report explaining that the pressure of work in Congress during the short session had made it impossible for the committee to complete its duties during the pending session and that it had, therefore, concluded to postpone further sessions until after March 4 and meanwhile to request of Congress an extension of the time of the report. On Tuesday, however, a rule was reported providing for an hour of debate on the resolution and it was passed by vote of 146 to 61, practically all of the Democrats voting for it and some of the Republicans. Most of the debate was on an amendment introduced by Mr. Black of Texas to omit the provision for an investigation of the question of government ownership, which was lost by a vote of 99 to 48.

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#### COMMISSIONER DANIELS' APPOINTMENT OPPOSED

Since the first of the year the Interstate Commerce Commission has been short one member because of the delay that the Progressive senators, led by Cummins and LaFollette, have been able to bring about in the attempt to secure confirmation by the Senate of President Wilson's reappointment of Commissioner Daniels, whose term expired on December 31. Day after day the Senate has gone into executive session to consider this and other appointments but the senators who are opposed to Mr. Daniels because he voted for an increase of freight rates have conducted a filibuster. Senator Cummins delivered a long speech in opposition to Mr. Daniels. The filibuster has not only hampered the work of the Interstate Commerce Commission but has greatly delayed the work of the Senate. The commission has met the situation by making Mr. Daniels a special examiner pro tempore, which has enabled him to continue work he has been engaged upon although he has not been able to exercise any of the functions of a commissioner. On Saturday the Senate reached an agreement to take a vote on Mr. Daniels' confirmation on Wednesday of this week. Report of action taken late Wednesday night will be found in the Commission and Court News.

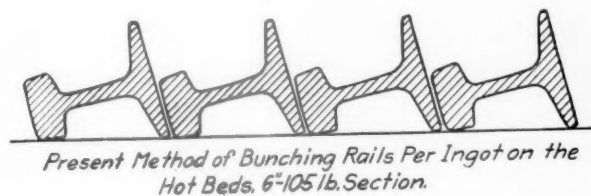
**GREATEST COAL PRODUCTION.**—Coal production records were smashed in 1916, when the output was around 597,500,000 tons, compared with 570,000,000 tons, the previous high record established in 1913. The quantity of bituminous coal mined was 509,000,000 tons, an increase compared with 1915 of 66,500,000 tons, or 15 per cent, according to estimates by C. E. Leshner, of the United States Geological Survey, Department of the Interior.

**GERMANY'S GOVERNMENT RAILWAYS.**—According to the latest published statistics, of the 38,516 miles of railway in 1912 in Germany, 35,608 miles were state railroads and 2,908 privately owned. The government roads are divided among the separate states as follows: Prussian-Hessian state railways, 23,835 miles; Bavarian state railways, 4,948; Saxon state railways, 2,041; Wurtemberg state railways, 1,267; Baden state railways, 1,086; Mecklenburg state railways, 682; Oldenburg state railways, 403; Royal Prussian military railways, 44; imperial railways in Alsace-Lorraine, 1,302.—*Commerce Report.*

#### INTERIOR TRANSVERSE FISSURES

An abstract of a report made by P. H. Dudley, consulting engineer, New York Central Lines, to President A. H. Smith, on Interior Transverse Fissures and Their Causes was published in the issue of August 18, 1916, page 287. Mr. Dudley has prepared a supplementary report on this same subject which has also been furnished to the Rail Committee of the American Railway Engineering Association. An abstract of this latter report which contains the results of further investigations by Dr. Dudley is presented below:

The passes in the rolls for the hot blooms and rails are turned to "hot templets" which provide  $3/16$  in. per foot for the shrinkage to cold metal. These are  $6\ 3/32$  in. high, and other dimensions in like proportion for the 6-in. 100-lb. hot rails and when rolled are sawed 33 ft.  $6\ 3/4$  in. long, then cambered—the head curved around the base—and run to the hot beds to cool. The shrinkage of the hot metal of the rail is more than the simple process of the gradual reduction of length and volume as the temperature falls, for the transformations of the metal from the higher to the lower temperatures should be practically complete through the recalcence at the critical range in cooling. This is accompanied by the unique phenomena of a rise of temperature during the recalcence with re-expansion of the metal at its critical range of temperature, and both should occur, though some-



Present and Recommended Methods of Spacing Rails on the Hot Beds

times they are only partial in an occasional rail head. The metal in the wide base, though it may contain the same area or more than the massive head, undergoes recalcence first, and its re-expansion curves the base around the head until it is practically straight, but continues to curve until the rail becomes "low" on the hot bed. Then the metal of the head starts to recalcence, re-expand and curve around the base, straightening the rail for a second time, and continues until the head generally is curved around the base, more than the original camber.

The rails at the mills—with one exception in this country—are bunched per bloom or ingot on the hot beds, without the requisite attention given to the proper spacing for uniform cooling. The rails upon the hot beds when spaced about 6 in. apart, are free from contact with adjacent rails during recalcence and the successive curvings of the base and head, and cool nearly straight, thus the rails require only a few light blows in the straightening presses to correct the surface and line. When the rails are bunched upon the hot beds, the heat of adjacent rails helps to expand the base more than should take place and forces an excess curvature to the head, which the recurving from its own metal does not correct. The central rails of the bunch do not recalcence in unison with the outer rails, therefore an irregularity of spacing takes place with unequal cooling, also unequal recalcence, and the rails

require several blows of the gag under the straightening presses to straighten them.

The metal of the rail head after recalescence still continues to lose temperature and in 20 to 25 min., or 35 to 45 min. after the rail reaches the hot bed, it is expected to cool nearly straight. This is rarely the case, however, and the rails need correction for surface and line under the straightening presses.

Induced interior transverse fissures which occur in an occasional rail head, show by my research, the association of a physically non-ductile core or metal near the center of the head, often under strains of tension, and sometimes with portions under strains of compression. When the core is under strains of tension in a "low" rail it may be checked by the gag in manufacture, or uncapped in a "high" rail.

The fissure, after the rail is laid in the track, commences to develop from the circumference of the checked core or imprint of the gag, for the ordinary strains of service become abnormal. The other portions of the same rail may not enclose a core or portion of such metal, while in other rails which have been rolled cold, the non-ductile core or metal may extend nearly its full length, as shown by several rails which have been tested under the drop.

Nearly all investigators have found the physically non-ductile core or metal near the center of the head, and some have not assigned its presence to the contributory causes, but wholly to conditions of service, while others have not offered any explanation whatever for its presence or absence. It should be recalled that the metal near the center of the head is subjected to pressure of the shrinkage in length and volume, and this stress and rigidity tend to irregular delay of the transformations with the unequal spacing and cooling mentioned. The recalescence and re-expansion in length and volume should be equally complete in the central portion of the head with its enclosing envelope, otherwise a physically non-ductile core in a portion or portions of its length may be left in an occasional rail head on cooling, and the core may be under initial strains of tension or compression with its enclosing metal and cause irregular ductility.

Rolling rails cold or by too rapid cooling upon the hot beds, is not generally understood as a condition of manufacture of basic open-hearth rails which may affect the physical condition of the output. The specifications of the New York Central Lines for basic open-hearth rails by their elongation and exhausted ductility tests, disclose the loss of ductility for the composition of the steel either due to brittleness or the crop being chilled, and the rails are rejected when below the stipulated per cent for the melt. The loss of uniform ductility by direct rolling in an occasional rail from the hot beds due to delays, cold rolling and irregular cooling by gusts of air by changing the spacing during recalescence, is more difficult to trace, and the conditions which might induce them should be eliminated in manufacture.

Interior transverse fissures from hooked ends of rails from the hot beds two or three feet from the ends of rails, form a large percentage of those which occur, and cores only as nodes at the rupture have been found to date. Trials were made August 26, 1914, to produce a hooked end on cooling rails upon the hot beds by the application of water and ice to the base, or blowing air upon the base when the outside temperatures were between 80 deg. and 90 deg. Therefore chilling the rails in rolling or cooling upon the hot beds would not be probable. Nine rails from five different melts were treated upon the base as described, though cooling of the head was avoided.

The base and head of the rails treated with water or ice, were not curved, and a hooked end was produced on only one of the three rails upon which air was blown. These rails were all gagged as usual in their manufacture, and the 9 rails were laid on the high and low side of a 15 deg. curve in September, 1914. These were worn out and taken up in

the latter part of May, 1916, and sent to Beacon, N. Y., to be tested, head down, with a tup of 1,800 lb. falling 12 ft. They were broken into short lengths, and in none of the pieces was a central core found underneath the bearing surface. Each piece showed from 2 to 4 per cent ductility in the rolled bearing surface of the head, which indicates that the wheel loads to wear out the rails, had not concentrated decided strains in the metal beneath the bearing surface.

All 80, 100 and 105-lb. rails in which fissures develop in the track, are sent to Beacon to be tested under the drop, as above described. The majority of the rails show some ductility in the rolled bearing surface, while other specimens which break without ductility, the fracture radiates from a core below the bearing surface. Additional fissures just starting are found in some rail heads on breaking them under the drop. Rails from the same melt, adjacent to the one which developed a fissure in the track, are also sent to be tested, and in several of these which have been subjected to the same wheel loads as these rails in which fissures developed, neither cores nor fissures were found. A non-ductile core has been found in a new rail which was being gagged under the straightening presses. The core broke, the fracture radiating from it, the blow being sufficient to fracture the entire section.

Pieces from the heads of three 100-lb. rails of two different brands, by direct rolling, have been nicked by a saw for two or three inch lengths, and upon breaking, disclosed twin fissures or twin cores, one in each side of the head. To date these twin or single cores as found, are in short nodes lengthwise in the head. The continuity of these cores through the rail head is often interrupted at intervals where the transformations of the metal have been more complete, while in some other portion of the head they may remain continuous. This irregularity in the transformations in a portion of the metal in an occasional rail head, is a new development in this research.

It should be borne in mind that by direct rolling of an ingot in part, from its own equalized heat to the finished rail, of basic open-hearth steel of the usual composition of 0.62 to 0.75 carbon, and manganese 0.70 to 1.00, that the metal retains some effect of the roll pressures which shape and extend the length of the bar in its various passes to the finished rail.

Transformations of the metal in these basic open-hearth rails by direct rolling has not been investigated as thoroughly as the transformations of metal in small bars which have been re-rolled two or three times.

The fissures do not all occur on the gage side; about 27 per cent in the 80-lb. rails are found on the opposite side of the gage. The rails are usually turned over after the recalescence of the base, and the upper side of the head as shown, would then become the lower side on the hot bed supports. Nearly 15 per cent of the intergranular type which have occurred in the 100-lb. rails, are opposite the gage side.

Improvements should be made in the hot bed work, also the supports in the straightening presses should be widened which would require less pressure of the gag to straighten the rails of heavy and stiff sections. There should also be regularity in rolling without delays to an occasional bar to avoid the rails being rolled so cold that they are liable to be chilled, particularly where the mill is subject to low temperatures in the autumn, winter and spring. The records show by the dates of manufacture, that the melts of basic open-hearth steel which are developing induced interior transverse fissures of either type, were rolled principally by "direct rolling" on days in the above-mentioned seasons when the temperatures were near or below freezing. The temperatures on rolling dates are important factors in cooling the rails on the hot beds, and should not be omitted in the correlated facts.

# Italy's New and Better Railroad Organization

Dividing the Railways into Two Zones Has Helped to Secure the Best Results in Wartime Transportation.

By Our Special European Correspondent

"YOU never know what you can do till you try," must have been meant to apply to the Italian State Railways, for the Italians are actually surprising themselves with their ability to get the most out of transportation. The management of the State Railways recently published in Italian newspapers a bulletin explaining the reason for curtailing the number of passenger trains, in which it showed just how extraordinary had been the increase in freight tonnage in a country where freights have previously been light and often limited in many districts to agricultural products.

The bulletin said that despite the relatively short hauls, locomotives were running an average of 18,600 miles a year and that, in other words, in this war year Italy's 5,000 locomotives have run a total distance of 93,000,000 miles or 3,720 times around the earth.

Italy's freight cars, of course, have run a reasonable num-

ber of miles, the total miles for the past financial year being 827,640,000. The average yearly run for a freight car has now become 8,276.40 miles as compared with 6,578.40 in 1913-14.

Of this total of 761 but 220 belongs properly to military transportation. Therefore, aside from military transportation, the normal before-the-war income has decreased about 32 million lire, because, while the normal freight receipts have increased some 21 millions the loss in passenger traffic has been about 53 millions.

On the whole, these figures indicate an activity in railroading that is as surprising as those cited recently by Premier Boselli, at Milan, regarding the industrial and war-production energy of Italy. He then showed that Italy had for war purposes alone 1,700 separate establishments employing 470,000 operators. The machine gun manufactures had increased 600-fold since the war, he stated, while projectile factories had increased 110-fold, and the automobile industry four-fold.

The railroad figures above quoted do not indicate the amount of money spent in railroad improvements for handling freight in war time, but these have been on a vast scale, both at the front and at seaports. It cannot be said that the Italian passenger service has improved in war time, for it distinctly has not, since the trains are dirty and unwashed as compared to those maintained for travel in the neighboring country of France. But otherwise Italy is maintaining a service that is excellent, conditions considered.

Handicapped by government ownership of railroads, and all that this entails, and still further handicapped by physical construction and geographical conditions not existing in any other large country at war, the Italians may in all sincerity be said to have, since their entrance into the war, learned a lot about their own capacities and about railroading. The big underlying cause is the necessity for securing results, and after this may be counted their native talent in organization and engineering which has not always had a chance of development, as with us where so much money is available for new work. Finally, I think, should be added the prod of military discipline.

It isn't a case nowadays of doing tomorrow what can be done today. Battles must be fought and won, and efficient transportation of troops and supplies is the initial step in the process. A delay in trainloads of shells, for instance, today positively means the failure of operations at the front on a big scale. It has since passed into history that the advance on the plains of Champagne a year ago by the French was arrested, not by Germans, but by lack of shells to continue the advance, and this incident has been repeated on all the fronts until today there is no tolerance of delays. Thanks to the firm hands of the military, train movements are carried out according to schedule. Back of the military officers in charge of the railroads, as aided by the railroad officials, loom the threatening figures of General Cadorna and his aid, General Porro. Neither of these men will receive an excuse on any point. They lay their plans, give their orders, and woe to the man who fails them.



The Railways and Railway Zones of Italy

ber of miles, the total miles for the past financial year being 827,640,000. The average yearly run for a freight car has now become 8,276.40 miles as compared with 6,578.40 in 1913-14.

Nor have these freight cars been running empty. The ton mileage has increased 26 per cent over 1914-15 and 30 per cent over 1913-14, being no less than 5,688 millions. Freight from all the seas of the world has poured into Italy. During the calendar year 1915 she bought abroad nearly a thousand millions of dollars' worth of products.

The total gross income of the State Railways is given as 761 million lire (upwards of \$150,000,000), an increase of 33 per cent over 1914-15, and of 32 per cent over 1913-14.

have to come home and go to the front as a soldier and thereby lose the result of his studies in England. But recently I met him when he stated that his son was home about to enter the army, according to the conscription law. "But," he said, "it won't ruin his career, as I thought. I have gotten him into the engineering corps and he will get experience at the front that he could never get in school or after the war. You see, we Italians are doing a lot of wonderful construction work, building bridges, laying new army railroads, so after all this may be the best schooling he could get."

#### HOW THE NEW WAR RAILROAD ORGANIZATION WORKS

When one understands just how many handicaps the Italians have overcome, or are bravely facing, the Italians may be freely said to have done more with less means than any other nation at war. Among the general handicaps were their own unwillingness to enter the war at all and their comparative national poverty. The specific handicaps of the Italians, from a transportation point of view, lie in her large single track mileage (though she began repairing that defect a year ago), her mountains throughout the peninsula with their heavy grades, her lack of coal, which has compelled her to pay from \$15 to \$40 dollars a ton ever since she entered the war, and, naturally, her inaptitude, her inexperience, and her inability to handle heavy freight in large quantities either at her ports or on her lines. Enemy submarines with nearby supply bases in the Adriatic, on the coasts of Africa or of semi-German, or semi-neutral Spain, have at times made Italy seem more like an island. She could not receive by water safely in large quantities the supplies she needed for rebuilding or readapting her railroad systems to its new needs. Yet there was always a 400-mile front to be defended, to be supplied, and at times the struggle has been intense to readjust her railroads to undreamed of conditions.

In a previous article, I have pointed out one single factor, that of accidents, which last January and February were so frequent that her train movements were at all points seriously tied up. These wrecks may have been the work of Austrian spies, but whatever the cause they have been eliminated. Since last March there has not been a single serious wreck in Italy. Other feats have been accomplished. Ports have been cleared of their huge quantities of freight, which relieved the demurrage situation whereby ships detained were being paid large sums of unnecessary money. Freights are no longer detained at way stations, or at terminals. This has been done without any material increase in the number of freight cars. Passenger and troop trains have been kept to their schedule, though just now some 100 through trains are being taken off because of the increasing price of coal and the policy of the government to prevent people from spending money unnecessarily. Italy has also had a larger hand in the movement of ally troops and materials to Salonika and other parts than she has received credit for.

In short, before the war she had a railroad organization calculated to conduct a war involving a half million troops and now she has one capable of handling three to four million troops.

#### ITALY'S TWO GREAT TRANSPORTATION ZONES

Roughly, this organization now consists of two general sub-divisions—one for the war zone, part of which is in Austrian territory, and one for the country at large, the latter division including transportation to Albania, Salonika, and other points. By these two divisions the country is cut in two, with each division independent of the other. All freight or troop movements originating at seaports or from the interior of the country are directed to some point at the frontier of the transportation war zone, which is many times larger than the military war zone proper, and after its delivery the control is entirely regulated by the set of officers, military and railroad, in charge of this division.

The control of the other and chief division is at Rome. While the set of officials, members of the general staff of the army, located at the ministry of war in Rome, upon whom calls are made for transportation to the war zone of materials—horses, troops, cannon, coal, lumber, food, clothes, and all the endless, countless equipment there needed,—may privately guess or know the ultimate destination and use of such shipments, they are not concerned with this fact. Their business is getting the trains to the frontier line of the transportation war zone.

Likewise, the officials of the war zone are not concerned especially with the origin of supply or troop trains. Their role is that of receiving and redistribution. England has such a division of labor and authority, because her armies are on French soil. France has not, due to the nearness of Paris to her front.

For Italy, this general dividing line may be roughly traced by cutting her territory in two, beginning at the French frontier and drawing a line through Alessandria, a strategic railroad center, across to Piacenza, thence to Bologna, the great military clearing house of the war zone, and thence to the Adriatic sea.

The railroads of Italy, of course, would have been otherwise divided had Italy's war been with France or with some country to the south. For many years there have existed skeleton plans by which Alessandria would become the distribution center in case of war with France, as Bologna is in the present war, and as Brindisi or Tarente would be in case of a war with Greece or Turkey. In the present arrangement, after the two main divisions of responsibility and authority, each main division is subdivided, the war zone territory containing three districts and the basic territory behind it, with headquarters at Rome, containing 11 districts.

Co-ordinating as they do, it would be difficult to say which of the two main divisions is the more important. Certainly that at the front appeals more to the imagination of the uninformed, with its constant struggle against life and death ever present, with its stream of trains loaded with troops, wounded, horses, immense cannon, its stations swarming with the life of war, its roads crowded with a traffic as dense as New York's Broadway; its perpetual movement haunting one afterwards like some huge, fantastic, inconceivable dream.

On this front the romance of transportation has received its crown. Branching out from Bologna into these three districts, across the plains to the feet of the mountains, run trains that connect with stone roads, with automobile stations or with stations the secondary transportation medium of which is the mule two-wheeled carts not unlike those employed by the armies of ancient Rome. The striking aspect of the modern army is its apparent lack of order. All seems confusion. Soldiers are dressed like dock laborers. Yet everywhere there exist invisible lines that bind these men together, and nowhere does this invisible order bind more tightly than in the transportation service. Railway stations are clean, cars are cleaner than in the peaceful districts behind the war zone. Roadbeds are kept in order. The troops that march to battle in summer do so over roads that have been made dustless by water sprinklers. In each district car repair shops have been established that take care of material damaged by enemy fire. Nothing is lost, thrown away, or let go to waste.

A recent report of the Agenzia Stefani, the governmental news bureau, tells part of the physical story of this 450-mile front by detailing the work accomplished there through 120 civil engineers, loaned by the Department of Public Works. Operating over 2448 miles of line they have built during the past 18 months 120 miles of new narrow gage road, 180 miles of broad gage road, built or repaired 110 bridges, and relaid or repaired 510 miles of rail. In addition to these things, they have aided in the construction of hospitals, shacks for

troop shelter, school houses, aqueducts, warehouses, and cemeteries.

The efficiency of the war zone transportation service received its greatest test, its chief baptism of fire, last spring when Austria made her great drive into Italy through the Seven Communes district, attempting to reach her old dominions upon the plains, at Vicenza and Mantua, long since wrested from her by Napoleon. She came a million men and 2,000 cannon strong. She surprised the Italians, took 30,000 prisoners—and then something happened. The Italians poured into the district within a week an opposing army of a million men, or rather they were shot there by fast troop trains, made up from reserve cars or from cars taken off regular duty, trains that came from Milan, from Brescia, from Bologna, from every point where troops could be grabbed up. It was a repetition of the rapid mobilization by train of the troops that saved Paris more than two years ago. This work was creditable for the reason that the railroad facilities in this region can in no sense compare with the admirable arrangement around Paris, from a strategic point of view. General Cadorna later made the feat the subject of an order of the day, in which he complimented his railroad men.

In passing, it may be said that these railroad men accomplished a work of as well-nigh great importance two and a half months later when they shifted suddenly, within less than a week, a large body of these same troops into the Isonzo district; when they drew cautiously troops from other points and concentrated them, so that the Italians might in their turn surprise the enemy, as they did, taking Gorizia and other important points. This latter piece of work deserves credit because it was done, as it must be done, carefully, without the knowledge of the enemy spies, ever alert to divine heavy troop movements and thereby forestall the plans of the commander-in-chief. All the heavy traffic was carried on at night, and even trains were run in the opposite direction in unusual number during daylight hours in order to deceive these spies.

#### HOW THE OTHER DIVISION WORKS

One of the strange facts about such colossal movements is that they are, indeed, carried on right under the nose of the whole country, remain unnoticed, and even without disturbing the normal traffic of the other lines. How it is done must yet remain one of the secrets of the general staff. I was traveling at the time, it so happened, of the periods of both these movements referred to, and saw no derangements in train services, as would seem necessary to conclude them properly. The fact appears stranger still when one considers that Italy, just over half the size of France territorially, with a population a few millions less, with an army nearly as large afield, has hardly one-half her mileage per 10,000 population, has but one-third her number of locomotives and scarcely one-third her number of freight cars. At the beginning of the war the state railways of Italy had exactly 5,306 locomotives, 10,078 passenger cars, 3,641 baggage cars, and 103,072 freight cars, figures which have not been materially increased. The length of the system then was 8,773.20 miles.

The chief of the general staff's railroad offices at the ministry of war in Rome, Colonel X—, did, however, explain in part to me the secret of keeping the traffic of the country behind the war zone going with a limited number of freight cars. He said the feat was done by keeping the cars moving, by loading and unloading rapidly without loss of time in the yards. His explanation is as clear as that of the man who told how he made one suit of clothes do for business wear, for Sundays, and as a full dress at the opera.

This officer said that each of the eleven districts of this division was in charge of a set of officers, both railway and military, who were responsible to him for all movements in their respective districts and that thanks to this arrangement

engines and cars were carefully watched at every point and always kept busy. He said the best arrangement for handling military movements was one initiated in the very beginning by which the railroads were required to set apart a certain number of engines and cars to handle military business, the railroads taking care of the public's business with the remainder. From these cars and engines, the military officers then made up their own movements, merely notifying the regular railroad officials of the time of arrival or departure of these trains. Naturally, when military movements were light, unneeded equipment was returned to the regular channels. These military trains are passed from district to district until finally they reach the war zone frontier, when they are receipted for. For instance, Rome, which is also the center of one of the eleven districts, may have 15 trains in a given week, which are used according to needs, and another 15 or 20 trains may belong to the public's service, though frequently a car or two, or a compartment in one or two cars, of each class (first, second, third), are set aside for the exclusive use of soldiers. On the whole, however, a clear distinction is made between public and military trains, whether troop or freight, and these trains are carefully followed and reported from district to district.

This is especially necessary in the case of ammunition trains which have on two occasions been blown up, probably by spies. Further, such trains routed on the tracks along the Adriatic, where enemy submarines creep close to the coast and fire upon them, must be run during the night and protected by armored trains. Frequently Austrian submarines have been decoyed by these trains, disguised as munition or explosive carriers, into showing their bodies out of the water in order to bring their deck guns into play, and have been promptly destroyed by the guns of the armored trains.

The railroad office at the ministry of war, of course, has a method of arranging its train movements from four to six days ahead, and notifying the company officials of these movements. Unless there is an urgent call, the order of business is for the Bologna staff to notify Rome of its needs as far in advance as possible, and then Rome makes its arrangements to deliver Bologna what it has asked for within the prescribed date. Since the demands of the war zone might indicate to spies the plans of the commander-in-chief, this schedule of train movements is classed as confidential information and kept locked in a huge safe in the office of Colonel X—, a safe, oddly enough, "made in Germany," and brought from there in the early days of the Italo-Germanic alliance. This military railroading of course works both ways, in that the war zone must return the trains it receives, and in order that the cars may not return empty they are turned over to the company for its uses. Be it noted, that business goes on in this zone as usual and within 10 miles of the firing line. In case the cars are loaded with troops or wounded, they come back under military control and receive the same careful checking as in going northwards, the eleven district chiefs in the case of wounded or hungry soldiers being required to attend to their feeding at proper intervals.

As is certainly known to *Railway Age Gazette* readers by this time, in Italy, as everywhere in Europe, stations of the slightest consequence, and always when at line intersections, are in charge of military officers without whose orders a train cannot proceed, no matter what its character. These officers keep a sharp eye on every train, see that train crews are prompt, that accidents are avoided, that the sidings are not uselessly crowded with laden cars that should be on their way, attend to the wants of traveling soldiers, investigate suspicious strangers, and enforce severely the regulations regarding track inspection both by the regular railroad employees and by the older soldiers of the territorial army.

In recording her gallant transportation fight, Italy's ports

must not be forgotten. In the war zone the railroad freight is frequently diverted from the cars upon canal boats, there being an extensive system of canals beginning with the river Po and intersecting northwards through the Piave and other rivers and waters including the lagoons behind Venice. This water route is used for grain, fodder, heavy foodstuffs, munitions and other classes of freights that need not be hurried to the front.

In connection with the handling of the railroads, the Rome office also must look after freight ships belonging to the government before the war, or borrowed or commandeered by it since, ships that have been assigned to this office to facilitate its prompt delivery of materials at the front. Due to the activity of enemy submarines, ships have become scarce for this purpose and often there is an interesting game of hide and seek to secure a ship.

In bolstering up the railroad service, many interesting improvements have been made in the way of enlarging port terminals. Italy spent a total of \$1,300,000,000 during the last financial year of the war, and the modest sum of \$60,000,000 went out of this total into war railroad improvements. The military port of Spezia, below Genoa, has been the scene of changes that cannot be described until after the war, as has Livorno, a little further down the coast towards Rome, where, for one thing, the port has been deepened to accommodate ships from America and elsewhere. At Genoa, Naples and other ports, and particularly at the naval base of Tarente to the far south, unusual methods have been evolved to supplant the old, slow ways of handling, of loading and unloading sea freights and transshipping them to or from cars.

Change, improvement, the spirit of get there, is in the air. Plans are already being made for the gradual extension of the electrification of the roads of Italy, of further doing away with her need of importing coal from England or the United States by the wider use of the "white coal" stored in her mountain streams. Daily, Italy is doing things she did not believe she could do before the war, and with that out of the way she intends using her present better organization to grasp fully her advantage as the transportation center of the Orient for both northern Europe and the United States.

One of the war-time recognitions of Italy's geographical position in this respect is the newly announced plans of the international railroad from Bordeaux, France, to Odessa, Russia, via Lyons, France, Turin, Milan, and Mestre (near Venice) in Italy, thence to Trieste (Austria) at the head of the Adriatic, Belgrade, and finally Odessa. Should Italian forces, now within 15 miles of Trieste, take that port by mid-winter and should the Allies establish themselves solidly at Belgrade and other Serb territory, there is no reason why this line should not tap the long-closed Russian markets before the end of the war via this route the major part of which already existed before the war.

### A CORRECTION

The St. Louis, Brownsville & Mexico and the Beaumont, Sour Lake & Western were both taken out of the hands of receivers during the calendar year 1916 *without* foreclosure. They were included in the table published in the *Railway Age Gazette* issue of December 29 showing roads sold under foreclosure. The New Orleans, Texas & Mexico, which owned securities of the Beaumont, Sour Lake & Western and the St. Louis, Brownsville & Mexico, had gone through a foreclosure sale, but there was no foreclosure of the latter two roads.

**AUDIBLE SIGNALS IN AUSTRALIA.**—The New South Wales Government Railways are testing one of the audible cab signals as used on the Great Western Railway of England.

## PROPOSED LEGISLATION AFFECTING RAILWAYS

\*The following bills affecting railways have been introduced in Congress:

H. R. 19730, by Mr. Adamson, January 6. To Committee on Interstate and Foreign Commerce. To amend the hours of service law of 1907; and also to amend the mediation and conciliation act of July 15, 1913; so as to authorize the President in certain emergencies to take possession of the lines of common carriers.

Mr. Adamson's bill is substantially the same as that introduced by Senator Newlands, but a section is added providing an eight-hour day for all employees engaged in the operation of trains. It makes it unlawful for any common carrier, its officers or agents, to require or permit any employee (subject to Federal law), to be or remain on duty for a longer period than eight hours in any period of twenty-four hours; but such eight-hour service need not be consecutive, but the Commission, after full hearing in a particular case, and for good cause shown, may extend the period within which a common carrier shall comply with this provision as to such case; and the Commission is authorized, in case of disagreement or controversy, on request or on its own motion, to prescribe regulations of, or allowances and tolerances for, necessary overtime to be paid for at not exceeding pro rata of wage per day. The bill retains the Newlands provisions for investigation by a special board of inquiry, following a failure of the Board of Mediation and Conciliation.

H. R. 19429, by Mr. Hilliard, January 2. To Committee on Interstate and Foreign Commerce. Prohibits charging for transportation of a passenger from one state to another state or through any number of states any sum in excess of the sum of the local passenger-carrying rates over the line.

H. R. 19546, by Mr. Sterling, January 3. To Committee on Interstate and Foreign Commerce. To amend Section 15 of the act to regulate commerce by inserting after paragraph 5 a clause giving the commission authority without formal pleadings, but upon reasonable notice, to enter upon a hearing concerning the reasonableness and propriety of any or all rules, practices, or agreements to which any carrier is party, governing the furnishing, distribution, exchange, interchange, return, joint use, or rental of freight cars and to determine and prescribe what shall be a reasonable and proper rule or practice to be thereafter followed for a period not exceeding two years.

**EXTRAVAGANT MEALS ON TRAINS.**—One result of the former competition between railway companies few years ago was a rivalry between the various routes as to which company gave the best meal on the trains, with the result that a first-class passenger could get an eight-course dinner for 3s. 6d. that would favorably compare with some of the dinners for double that money served at some of the swell hotels and restaurants in London. But no one hardly would think of calling the former extravagant; they were certainly not extravagant in the matter of price nor in the quantity of the food supplied. Nor does the anonymous correspondent who wrote to *The Times* of Saturday last complain of the price—4s.—for the dinner he had on the Great Western express from Swansea one evening last week, but he draws attention to the "needlessly profuse and expensive meals still supplied in restaurant cars on trains." The meal in question was one of eight courses, but all the items were simple and the portions small, so that the dinner could not be classed as either "needlessly profuse" nor "expensive." No doubt the companies will take some action, on lines similar to hotels and restaurants, as to modifying the meals on trains, but there is not the same justification for economy here as in the expensive eating establishments in London and elsewhere.—*Railway Gazette, London.*

# The Adamson Law Before the Supreme Court

Government Argues That the Law is One Limiting Hours; Railroads Argue That it Deals Solely with Wages

THE hearing of arguments on the constitutionality of the Adamson eight-hour law before the Supreme Court was begun on Monday, January 8, and continued on Tuesday and Wednesday. The court allowed eight hours for the argument. The railroads were represented by Walker D. Hines, general counsel of the Atchison, Topeka & Santa Fe, as chairman of the committee of counsel for the railroads, and John G. Johnson of Philadelphia, while the defense was in charge of Solicitor-General John W. Davis, and Frank Hagerman of Kansas City, special assistant to the attorney general. The arguments were upon the appeal of the United States attorney at Kansas City from Judge Hook's decision in the injunction suit brought by the Missouri, Oklahoma & Gulf to enjoin the enforcement of the law, which was agreed upon as a test case by a stipulation signed by counsel for the railroads and for the department of justice. The brotherhoods took no part in the argument, although Warren S. Stone, grand chief of the Brotherhood of Locomotive Engineers, was present in the court room. Solicitor General Davis presented the opening argument for the government and was followed by Walker D. Hines for the railroads. Mr. Johnson and Mr. Hagerman presented the closing arguments. Voluminous briefs were filed by both sides.

## GOVERNMENT ARGUMENT

The government in its brief maintained that the law is within the authority conferred by the commerce clause of the Constitution and does not conflict with any limitations upon the power of Congress prescribed in the Constitution. Under the first head the government insisted that the law is constitutional whether it be a law limiting the hours of labor or merely a regulation of the wages of railway employees, although it is contended that the law applies to hours rather than to wages. An abstract of the government's argument is as follows:

The Supreme Court has already upheld the power of Congress to regulate the hours of labor of employees while engaged in interstate commerce. The court has also upheld laws which limit the hours of labor to eight hours, thereby holding that legislative bodies did not abuse their discretion in declaring that eight hours shall constitute a day's work. On this phase of the case, therefore, the government maintains that in this case it is only necessary to establish that the Adamson law is an hours of service law.

Most hours of service laws, the brief contends, are not absolute limitations upon the number of hours employees shall work, but excess service is permitted in exceptional circumstances. For example, under the hours of service act known as the sixteen-hour law, train employees may continue at work after 16 hours in any case of casualty or unavoidable accident or the act of God.

The Adamson law differs only in degree of rigidity from other laws of this character. It recognizes the present impracticability of an eight-hour day in railroad service, but seeks to put such day into effect whenever and to the extent conditions permit. Formerly, railroad employees were paid by the trip regardless of actual hours of labor. As commerce grew and became more complex, trains became longer and heavier and traffic more congested. Consequently, the movement of trains between terminals became slower and required more hours than before. Under the old system employees were required for the same wage to cover the same distance though a greater number of hours were re-

quired. The lengthening of the hours of labor attendant upon these changed conditions became a menace to the employees and to the public. The sixteen-hour law was enacted to remedy this evil, and later on agreements were perfected between the railroads and employees whereby the present ten-hour standard day was adopted. About a year ago the employees demanded an eight-hour day. Upon failure of the parties to agree, the Adamson law was enacted making eight hours the legal standard workday. This law permits overtime work whenever the employer considers such excess service necessary, but the penalty of payment for overtime service is imposed in order to enforce obedience to the eight-hour provision as far as possible. The difference between the Adamson law and other laws of like character is one of degree and not of principle. The elasticity of its provisions was designed to facilitate the readjustment of present railroad conditions to the eight-hour day, thereby bringing it into gradual operation. The natural tendency of this law will be to make the employers use every effort to limit the hours of service to eight.

The government then argued that even if the Adamson law were only an act regulating the wages of employees engaged in interstate commerce, as claimed by the railroads, it will still be within the power delegated to Congress in the commerce clause of the Constitution. The Supreme Court has repeatedly declared that Congress's power over interstate commerce is supreme, and extends to the regulation of the relations of common carriers and their employees while both are engaged in interstate commerce. The brief then proceeds to show how vital the wage relation is to efficient and safe railroad service. To maintain physical efficiency of the employees is just as necessary as to keep in good condition the physical instrumentalities used in interstate commerce. This is impossible without proper living conditions, which demand suitable food, clothing, rest and recreation. These, in turn, cannot be secured without the payment of an adequate wage, which Congress has a right to demand. On the other hand, the public is interested in preventing the payment of wages which are too high, because this would result in unreasonably high rates or impaired service. In either event, it is the public that pays and it has a right to demand regulation of wages to the end that it may enjoy reasonable and just rates. Furthermore, disputes about wages may, and frequently are, the cause of interference with or entire stoppage of the flow of interstate commerce. Strikes are the usual weapon of labor to enforce its demands. When effective, they block the channels of commerce as completely as if physical obstructions were placed in its way or parts of its lines removed. In fact, nothing could interfere, as shown by several historical references, more seriously with interstate transportation than a general strike like the one recently threatened. The Adamson law, by regulating the wage relation, kept the channels of interstate commerce free and open and averted a disastrous strike.

The rest of the brief is taken up with answering the contentions of the railroads.

In the first place, the government maintains that there is no interference with the railroads' liberty of contract, nor a taking of their property without due process of law, but, on the other hand, if there were such interference with existing contracts that this would be immaterial because the contracts must yield to the law where the latter is within the powers granted to Congress.

The railroads' argument that the classifications made in

the act are arbitrary and therefore unconstitutional is answered by citation of authorities to show that the Supreme Court had upheld similar classifications in other cases valid.

#### RAILROAD ARGUMENT

The railroad brief declares that the Adamson act does not limit the hours of service to eight, but that the language shows that it deals solely with the construction of contracts and with the standard and amount of compensation without any limitation of the hours of labor.

An abstract of the argument is as follows: If the Adamson act is a limitation upon the hours of service, then by implication it would repeal or amend the 16-hour law of 1907, but the act does not purport to repeal or amend the hours of service act and makes no reference to it. The language for limiting the hours of train service has often been used in legislation, but no such language was used in this act.

It is also contended that the limitation to eight hours of service would so largely affect the rights of the carriers and the shippers and the consuming public that its establishment by mere implication should not be tolerated. The peculiar character of railroad train service is such that it is impossible to reduce the hours of train service employees to eight except by shortening the distance between terminals, necessitating the extensive abandonment of existing terminals. One of the principal causes which has produced the existing low rates has been the great economy effected through heavy train loading, which would be largely destroyed if train loads had to be lightened so that they may be moved at a higher speed. The Interstate Commerce Commission has repeatedly pointed to the economy resulting from increased train loads as one of the most important economies enabling the railroads to offset without rate increases the heavy increases in wages. Therefore the ability of railroads to maintain themselves with a minimum of increases in rates depends very largely upon their ability to maintain their increased freight train loading. It is contended that present conditions do not support the view that an absolute limitation to eight hours of work for all classes of employees in all classes of train service would have a substantial relation to the promotion of safety. There is nothing in the present conditions to justify the court in the belief that a limitation to eight hours is reasonably necessary or appropriate to promote safety or has anything more than a fanciful relation to that subject. Certainly if Congress in 1907 reached the conclusion that train service employees could remain on duty for 16 hours without being so overworked as to endanger railroad travel, nothing has since occurred to justify the judgment that this limit needs to be reduced to eight hours. The far reaching practical consequences of such a limitation all make it extremely doubtful as to whether Congress at a single stroke would have the constitutional power to reduce by half the present maximum limit. It is, therefore, contended that the act is nothing except what it purports to be, a direct attempt to regulate the method of computing compensation and to fix the amount thereof.

There might be some plausible suggestion that a locomotive engineer on a fast passenger train, making practically no stops, ought to have some special limitation of his hours, in view of the at least theoretical concentration which he must put upon his work. But there would be no basis for applying the same reasoning to the employees on a slow freight train, and especially to the conductors and brakemen, whose activities while in service are intermittent. One of the peculiarities of train service is that the employees do not have to work arduously and continuously during the hours they are on duty. Much of the delay on the road, at least as to through trains, is due to waiting for orders or for other trains to pass. Even when the trains are in motion the conductors and brakemen do not ordinarily have to engage in anything like continuous labor.

The chief attack on the constitutionality of the law is directed at the third section, which attempts to increase the wages of a portion of the employees for a period of from seven to eleven months. The railroads argue that this is a violation of the fifth amendment to the Constitution because it is an extreme interference with the liberty of contract, an appropriation of property without compensation, and legislation for the direct benefit of one class of the community at the direct expense of another class.

The apparent intent of the law is to give a large increase in wages to the best paid men and a smaller increase to those less well paid. It cannot be argued that such wage increases would promote efficiency or safety. Wage regulation of this character is plainly not a proper regulation of commerce under the Constitution. The court can deduce from the act itself no purpose except the purpose to control two features of the contracts between the railroads and their train service employees, the first feature being the standard by which compensation shall be reckoned, and the second being the amount of the compensation itself. These matters are not in themselves interstate commerce or instrumentalities of such commerce, but are incidents which are per se beyond the power of Congress. Doubtless, if the court shall ever take the view that Congress has the power to promote interstate commerce by prescribing proper wages for train service employees, such doctrine would be by a further development of the ideas expressed in *German Alliance Company v. Lewis*, where the court held that prices may be fixed for service as well as for the use of property, and that this may be done even where there is no legal obligation upon the person affected to render the service; and that all depends upon the question whether the rendition of the particular service has become a matter of sufficient public concern to justify a limitation upon the price or compensation which shall be charged. It may be that, hereafter, the court will conclude that, on account of the control exercised by the railroad brotherhoods over the welfare of the public, and the consequent power which the brotherhoods have to exact excessive wages for the service which their members perform, Congress has the power to protect the public by restricting the extent of these exactions. But the question does not arise now because section three has no such purpose or effect.

The act cannot be upheld upon any theory of a power in Congress to control railroad expenses so as to promote reasonable rates. The effect of this act would be to add many millions of dollars to railroad expenses with the result that the rates would have to be raised instead of lowered.

The Interstate Commerce Commission several years ago warned the carriers that they were already paying high wages to these particular men, and that they could not expect to get rate advances to enable them to pay extravagant wages. The wages of these men are considerably higher than they were then. The act cannot be upheld on the ground that its object was to avert the strike. No case can be found where the property of one person was transferred to another merely to appease that other person and prevent him from committing an injury or doing harm to the community. The act was not a proper means of settling a controversy, because there was no hearing on the merits, and the act is binding on the railroads but not upon the employees.

The railroads point out that, even though the law were upheld as valid, its meaning is clouded in ambiguities, and that it could not be obeyed without a judicial determination of its meaning. The only effect of a consideration of the history leading up to this legislation is to confirm the view that in the eye of the law the legislation is an interference with the liberty of contract and an appropriation of the property of one to the use of another. In other words, Congress tried (though in a manner very different from that specified in the demands of the labor unions), to modify the contracts so as to give the employees more money and did

this in an act which did not purport to prevent the strike or to relate in any way to the regulation of commerce among the states.

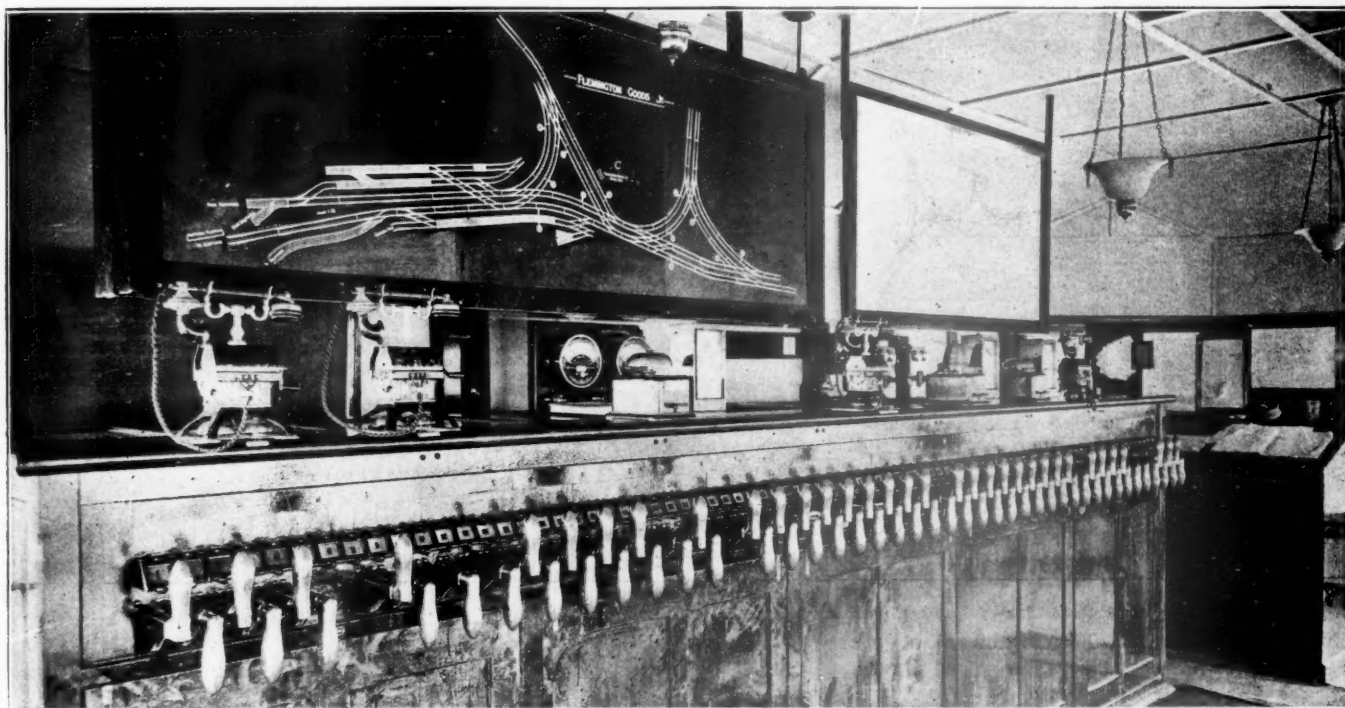
Even though the court should be disposed to declare that Congress has jurisdiction to control or prescribe the wages of employees of interstate carriers, it is submitted that this act, operating arbitrarily in favor of the employees for whom these four brotherhoods were making demands, and operating arbitrarily against the other four-fifths of railroad employees, is an arbitrary and unconstitutional discrimination. The railroad itself is entitled to complain of being compelled to discriminate against other employees, and of being compelled to devote to the favored class property upon which the classes discriminated against have at least an equal claim.

The judges manifested keen interest in the argument regarding the power of Congress to regulate wages. Chief Justice White and Justice McReynolds asked several questions indicating doubt as to whether the authority of Congress goes so far. Justice Pitney asked Mr. Hagerman whether Congress could pass a law to require railroads to buy coal by the short ton of 2,000 pounds and pay for it at the price of a long ton of 2,240 pounds, for nine months pending an investigation. Justice Brandeis asked whether

## FLEMINGTON INTERLOCKING, NEW SOUTH WALES

The signal department of the Government Railways of New South Wales has recently completed an extensive all-electric interlocking at Flemington, near Sydney, which is illustrated in part by the engravings shown herewith, which have been sent to the *Railway Age Gazette* by C. B. Byles, signal engineer of the Government lines, under whose supervision the apparatus was installed by the railroad forces.

These State-owned railways have made great progress in recent years in the installation of power and automatic signaling, and several extensive installations are now in operation, while others are under construction or in contemplation. In respect of area of control, this one is the largest of the power installations. It is on the lines giving access to Glebe Island and other points in the Metropolitan area, which lines are used only for freight. Flemington is about 9 miles from Sydney. Some idea of the general layout can be had from the diagram in the cabin. The extreme distance between the switches of the two farthest junctions is about 5,000 ft. If old-style signaling had been installed,



Electric Interlocking Machine at Flemington Goods Junction, Near Sydney, New South Wales

the court should take into consideration the increased cost of living, to which Mr. Hines replied that in view of the high wages being paid to the trainmen the cost of living was not a vital consideration. Justice Brandeis asked whether all hours of service legislation in the states did not begin by prescribing a standard work day, before imposing any exact prohibitions, without any suggestion that such laws were for the purpose of increasing wages. Mr. Hines replied that the Adamson law does not even provide a definite standard of eight hours on the interpretation placed on it by the government, because it would permit men to work 16 hours for pay for 200 miles or at the same rate that would be paid to two men for the same work.

**NEW SWEDISH CANAL OPENED.**—The Trollhattan Canal, recently opened to traffic, forms part of the Göta Canal system of Sweden, connecting the Skagerrak at Goteborg with the Baltic at Söderköping.

the controlling of these seven junctions would have involved the provision of at least five cabins, with the necessary block working arrangements from cabin to cabin.

The signaling system is that of the General Railway Signal Company of Rochester, N. Y., and the machine has the cross protection and dynamic indication which are features of the G. R. S. apparatus. In addition to the usual locking in the machine there is a complete equipment of track circuit locks.

The whole of the signals are upper-quadrant, three-position, and the section from each signal to the next signal in advance is treated as a separate block section unit, as in the latest American practice. The use of the yellow light has not been adopted in New South Wales, and, in order to give the third light combination there is a lower light on each signal post. The color of the upper light is given by one red and two green spectacles working with the arm, and the lower light—which consists of two lamps, one red and one green—is switched automatically by circuit closers working

with the arm mechanism. Thus, when the arm is in the horizontal position, two red lights are displayed; when in the 45 degrees or caution position, the upper arm shows a green light and the lower arm a red light, and when the arm is at clear (90 degrees) both arms show green lights. Thus the indications are the same as those displayed by a two-arm home and distant signal. This has been adopted as the standard practice in New South Wales where 3-position signals are in use. At Flemington the signals have electric lights and the color of the lower lights is changed by merely switching one lamp in and the other out.

Track circuit protection is provided throughout, and each signal is controlled by the track up to the next signal and sufficiently far ahead to give the requisite overlap. At converging junctions where the conditions are favorable, two trains are allowed to approach a junction simultaneously, but neither train can foul the route of the other one until the first train arriving at the junction has been brought to a stand. At junctions where the conditions are not favorable converging movements are kept back at the next signal in the rear, in the regular English fashion. All these requirements are enforced automatically by means of the track cir-

conflicting movements can then be set up. This releasing arrangement is rendered inoperative when the signal immediately ahead is cleared. This prevents the risk of the locking being released when the engineman, by seeing the signal at clear, is expecting to receive the right of road. Immediately the engine passes off the time-limit track on to the track next in advance, the latter track performs the necessary locking functions, and the lifting of the time-limit relay during the time that the train is passing over the track has, therefore, no effect, even when the signal has been placed at stop.

In order to insure that the time-limit relay has dropped properly, a proving contact is inserted in the track circuit immediately in the rear; thus, if the time-limit relay were not operating correctly, the signal in the rear could not be cleared. The relays are adjusted to operate at 40 seconds, but it is found in practice that with this type of relay any timing can be obtained up to 6 minutes with a variation of not more than 5 seconds.

On the illuminated diagram in the signal cabin small red lights are provided at the junctions which, when a train approaching the junction has come to a stand, indicate to



*Left-hand Running; Signals at Left Side of Track; Signal Arms at Left of Post.*

#### Flemington West Junction, Government Railways of New South Wales

cuit and the interlocking in the machine. Approach locking is provided for all switches, both facing and trailing, and there are no detector bars.

Signals have been provided for every possible operation which is safe, and no provision has been made for releasing by the signalman. The only releasing arrangements are those referred to below, which take place automatically when trains have been brought to a stand.

As the line is used exclusively by goods trains, it sometimes becomes necessary, having brought a train to a stand at a junction, to allow another one to take precedence of it. This is done by means of a system of track time-limit relays. Immediately in the rear of the signals protecting the junction are short lengths of track circuit, and, in conjunction with these, a special time-limit relay is operated, which is so set as to require for its operation more time than would be consumed by a train passing over the short length of track circuit if the train were traveling at a greater speed than about  $1\frac{1}{2}$  miles an hour, which may be regarded as equivalent to the train coming to a stand. If the train does not travel from end to end of the short length of track circuit in less time than this, the locking is automatically released and

the signalman that the train is operating the time-limit relay.

Two  $3\frac{1}{2}$  k.w. single-phase induction type motor generator sets, having a range of 110 to 170 volts for charging the main storage battery, are provided on the ground floor. By separately exciting the fields from the 110-volt battery, the sets are used also for charging the low voltage track battery.

The storage batteries consist of a set of 55 cells of type "C" Premier accumulators of English manufacture, the capacity being 135 ampere hours. In addition to this main battery, two sets of 14 cells are provided for the track circuits, the batteries being discharged on the track circuits in parallel at 4 volts, and charged in series. Electric lighting is provided in the cabin. In the operating floor, indirect lighting is used with very satisfactory results; elsewhere in the cabin direct lighting is used. To provide for testing the circuits in case of trouble, all wiring is made thoroughly accessible, and terminal boards are provided in the lower story of the cabin, and at the various locations for all wires. The system of identification provided for the purpose consists of a set of circuit plans in book form for the installation, made up of a number of small lettered sheets which are convenient to

handle, and these circuits correspond with the wiring on the terminal boards, relay racks, indicators and fuse boards, the contact points on the plans being numbered accordingly.

Power for all purposes is taken from the departmental 2,200-volt supply and transformed on the pole outside the signal cabin to 240 volts. The 240-volt supply is taken into the signal cabin by cable, laid in bitumen, and transformed inside the cabin to the various voltages required. All track relays are in the lower story of the cabin.

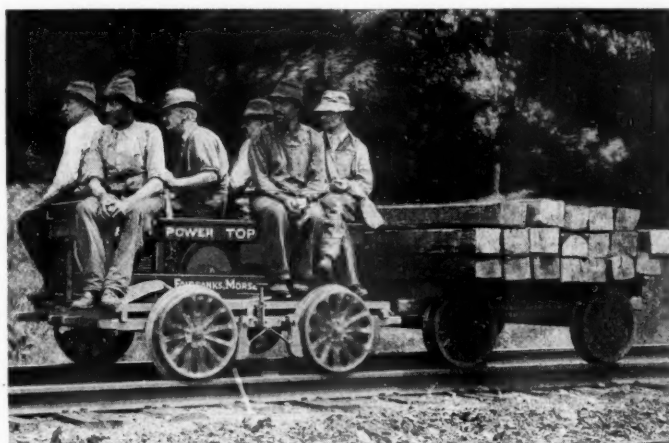
The outdoor photographic view was taken at the end of the plant farthest from Sydney, which is the right hand end of the diagram which appears in the view of the interior of the cabin. A considerable portion of the tracks are in cuts and the cabin (shown at "C" on the diagram) is on the natural surface, where it is reached by ascending about 40 steps. In the outdoor photograph the white roof of the cabin is faintly visible in the distance, immediately above signal 62.

The total number of levers in the machine is 88, of which 56 work signals, 26 points, and 6 are spare.

### A POWER PLANT FOR HAND CARS

A complete self-contained power plant for hand cars has recently been placed on the market which is designed to meet the demand for a gas-engine outfit by means of which a hand car may be converted into a motor car at relatively small expense, thereby permitting a railway to realize a large part of its investment in a hand car while providing its workmen with a power-operated car. This feature is of particular importance in view of the large number of hand cars owned by the railroads.

The power plant complete is enclosed in a frame, the top



A Power Top Car in Use.

of which provides seats for a crew of eight men. The frame can be installed on a car with few alterations to the old equipment. The idea of simplicity has also been carried out in the engine it having been the aim in the design to secure a minimum number of working parts. A 5-h.p. air-cooled motor is provided which is of the same type as the one used on the Sheffield steel frame motor cars. Being intended for the exclusive use of kerosene it has been designed especially for the use of that fuel and is said to operate successfully at any temperature encountered in railroad service. Balance is obtained by the use of duplicate fly wheels on opposite sides of the crank and starting and stopping of the car is manipulated with the belt drive by adjusting the tension on the belt. This is secured by sliding the engine bodily on the sub-base plate through the agency of a lever.

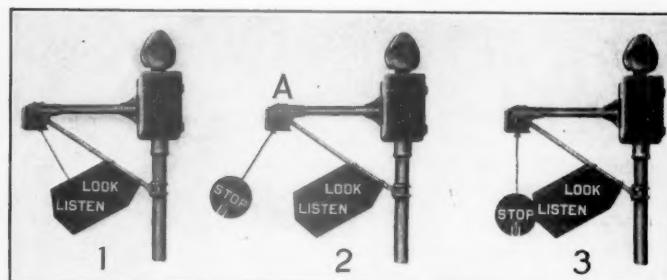
The outfit, ready to attach to a car, is 25½ in. wide, 74 in. long, and weighs 415 lb. It is rated for a speed of 15 miles per hour in either direction. As shown in the accompanying photograph, a car thus equipped can be used to haul loaded push cars, a feature of growing importance in economi-

cal maintenance of way. This equipment is known as the "Sheffield Power Top" and is manufactured by Fairbanks, Morse & Company, Chicago, Ill.

### THREE-ASPECT "AUTOMATIC FLAGMAN"

The illustrations shown herewith, Figs. 1, 2 and 3, describes a visual signal for highway crossings of the type ordinarily known as an "automatic flagman," recently brought out by the Union Switch & Signal Company, Swissvale, Pa. While displaying a "stop" indication by the movement of a disk, in normal operation, it is so designed that a failure of any part of the apparatus or the absence of power will cause a second or emergency stop indication, different and distinct from the "proceed." In other words, this signal has three aspects, one indicating "PROCEED," and either of the other two aspects indicating "STOP."

Under normal conditions this signal indicates the approach of a train by swinging a red banner on which appears the word "STOP," and by displaying a red light attached to the banner. The light (electric) is seen in Figs. 2 and 3. When no train is approaching the banner is held to one side (Fig. 1) between two screens on which is painted a warning to "Look and Listen," and the electric lamp in the banner is not lighted. If the circuit through the holding magnets is not broken, but the apparatus is otherwise in good condition, the banner will swing irrespective of the approach of a train. If the circuit is broken through the operating magnet but not through the holding magnet the banner will be retained in its extreme position between the screens (Fig. 1) until a train approaches, when it will be released and ultimately will assume a vertical position, with the banner stationary but fully displayed (Fig. 3.) If current is totally cut off from the mechanism, or if the operating parts become disconnected, the banner will also assume the vertical



Three-Aspect Crossing Signal

position and be fully displayed. Thus the aspect shown in Fig. 3 always indicates that something is out of order.

The operating mechanism is enclosed in a weatherproof case and consists essentially of operating magnets for driving the swinging banner and of holding magnets for retaining the banner at one end of its arc of travel. A circuit controller provides for the selection between the pairs of operating magnets. The current normally required is 10 volts direct. It requires an average of 0.4 amp. to swing the banner, and 0.4 amp. for the 5-watt 12-volt lamp, making an average of 0.8 amp. drawn from the battery while the banner is swinging. The holding magnets are of 1,000 ohms resistance and require normally 10 mil-amperes when the banner is latched in the clear position. The control is so arranged that it is unnecessary to break the operating circuit through relay contacts. The only current passing through these contacts is that of 10 mil-amperes required for holding the mechanism in its latched position.

The "flagman" can be equipped with a bell and with either an oscillating or a fixed lamp. The place for the fixed lamp is indicated at A, Fig. 2. If desired, the fixed lamp can be arranged to burn oil and to give flashes of light as the banner swings to and fro.

### EDWARD T. JEFFERY

Edward T. Jeffery, chairman of the board of directors of the Denver & Rio Grande, has retired. Mr. Jeffery was president of the Denver & Rio Grande from 1891 to 1912 and has been chairman of the board since 1912. He came up from the bottom round of the ladder in railroad work, having begun as an office boy in the office of the superintendent of machinery of the Illinois Central in 1856 when he was 13. When he left the Illinois Central in 1889 he was general manager. He was offered the presidency of the Denver & Rio Grande by the board of directors which controlled the road before the Goulds had bought into it. George Coppel was chairman, and in the years from 1891 to 1901 the full responsibility of the management of the property rested on Mr. Jeffery.

During the panic of 1893 Mr. Jeffery kept the Denver & Rio Grande out of the hands of receivers. This was no small feat. Colorado was hard hit by the demonetization of silver. Many of the big silver mines shut down; more than half of the banks in Denver failed, and in the fiscal year ended June 30, 1894, the Denver & Rio Grande gross earnings fell to \$6,476,000, as compared with \$9,318,000 in the previous year. At that time the Denver & Rio Grande had a property that had been kept up in very good shape, so that for a time it was possible to cut maintenance expenses to the bone and still continue to operate the property safely and economically. Since that time, however, the property has never been put back into really first-class condition. President Mudge is hard at work on this task now, but during the Jeffery regime, and after the Goulds got control and Mr. Jeffery had as his chief George Gould, years of bare maintenance alternated with years in which rather inadequate attempts were made to take up the deferred maintenance.

Mr. Jeffery was not of the type of railroad managers which are today considered progressive. That he had good fighting qualities was shown in 1893, but that he felt that he owed a duty to the public as well as to his stockholders was not so apparent. When the Goulds got control, Mr. Jeffery was placed in a hard position, undoubtedly. He accepted the only method by which it was possible for him to hold his position, and that was not one which was conducive to a far-sighted, progressive, independent management of the Denver & Rio Grande.

The physical difficulties of successful operation of a property like the Denver & Rio Grande, with its mountain grades, are unquestionably very great. It might well be that no railroad man could have made the Denver & Rio Grande a great and lasting financial success; but, on the other hand, it is only fair to other railroad men who have succeeded in achieving the seemingly impossible, to say that the fundamental principles of good railroading which were applied to the up-building of the Union Pacific, for example, were not applied

to the Denver & Rio Grande, so that the road has not had in recent years either the confidence and good will of the public it serves or the confidence and credit with bankers and investors that better managed roads have had. One of the great mistakes Mr. Jeffery made while president of the Denver & Rio Grande and also of the Western Pacific was that of living in New York far remote from these properties, which in consequence he seldom saw and at the same time trying to serve as their active manager. It is given to few men to be able to serve successfully as the active manager of railways that are two or three thousand miles away from them.

Mr. Jeffery was born April 6, 1843, in Liverpool, England. He began railroad work in October, 1856, as office boy for the superintendent of machinery of the Illinois Central. In December of that year he became an apprentice in the shops, working there for a year and a half, and then went back to the office of the superintendent of machinery. From 1859 to 1863 he was an apprentice in the office of the mechanical draftsman, and was then made mechanical draftsman and secretary to the superintendent of machinery. In 1871 he was appointed assistant superintendent of machinery of the Illinois Central, and in 1877 was made general superintendent and chief engineer. In 1885 Mr. Jeffery was made general manager, leaving the Illinois Central in 1889. On October 1, 1891, he was elected president of the Denver & Rio Grande, and was made also general manager. In 1901 George J. Gould became chairman of the board of directors and Mr. Jeffery was president, the office of general manager having been abolished. In 1912 Mr. Jeffery became chairman of the board, succeeding Mr. Gould, and B. F. Bush became president. Mr. Jeffery was chairman of the board of the Wabash from 1905 to 1912 and was president of the Western Pacific during the time of its construction and until it went into receiver's hands.



E. T. Jeffery

**SAVING DAYLIGHT IN AUSTRALIA.**—The daylight-saving plan has been adopted by the states of the Australian Federation. The Commercial Cable Company has announced that those states, including Tasmania, had pushed the clock ahead one hour, beginning January 1. The advance will remain effective until the last Sunday in March, this period being summer in that part of the world.

**RAILROAD EXPORTS FROM GERMANY.**—In 1913 Germany exported 500,835 tons of railroad and street-car rails valued at \$14,440,700; 101,728 tons of iron sleepers valued at \$2,922,500; 32,565 tons of railway joints and bedplates valued at \$1,057,250, and other railroad material to the amount of 113,778 tons and the value of \$7,657,000. Imports of all articles of the classes mentioned above amounted to 1,573 tons and of the value of \$78,500.—*Commerce Report.*

## General News Department

The Southern Railway has put in use, at 28 principal stations, specially built typewriting machines for making waybills.

The embargo which the Union Pacific placed on freight from connecting lines and that originating at competitive points on its own lines, effective December 26, was lifted on January 8.

A fire in the freight shed of the Grand Trunk at Hamilton, Ont., January 7, destroyed half of the 1200 ft. shed and a large quantity of merchandise; estimated loss, including 13 freight cars, \$90,000.

George W. W. Hanger, assistant commissioner of the Federal Board of Mediation, is in New York, considering differences between the New York, New Haven & Hartford Railroad and its telegraphers.

The Illinois Central and the Chicago, Burlington & Quincy each report that no passenger was fatally injured in 1916 through the fault of the company. The Illinois Central carried 42,000,000 passengers, and the Burlington, 22,800,000.

The New York Central reports that on through trains arriving in New York City between 8 and 9 o'clock on the morning of Monday, January 8, the dining cars served 1,200 breakfasts. To do this required the services of 16 cars, 82 cooks and 125 waiters.

The Nashville, Chattanooga & St. Louis uses telephones for train despatching on 322 miles of its lines; and, through the purchase of 445 additional miles of pole and wire lines from the Western Union, expects, within a short time, to use telephones on approximately two-thirds of its system.

The bureau of investigation of the United States department of justice will investigate the activities of labor leaders in connection with the suspension of work on the new Union station at Chicago. It is thought that charges of conspiracy, restraint of trade and numerous violations of the act to regulate commerce will be substantiated.

An explosion in a passenger car of a southbound express train of the Southern Railway, near Birmingham, Ala., on the sixth of January killed two passengers and injured four others, one of them fatally. One end of the car was wrecked. It is believed that one of the dead passengers was a suicide; that he caused the explosion by the use of nitro glycerine.

The Southern Pacific Lines in Texas are now using the self-locking Tyden freight car seal. Lead and tin seals requiring the use of a seal press have been abandoned, and agents and conductors are called upon to be able to report, at the end of a year, the results of their experience with the new seal, so that it will be possible to make a comprehensive report of the results of the year's trial.

Representatives of the railroads entering the Polk street and Union stations in Chicago appeared before the license committee of the city council on January 4, to urge the discontinuance of the issue of licenses to hotel runners. The runners largely represent cheap hotels and their uniform caps mislead the public into believing they are connected with the railroads.

The Texas legislature convenes January 9, and the Brotherhood of Railway Trainmen already proposes a full crew law—one to require all freight trains of 50 cars or more, to carry three brakemen; also a law prohibiting the black listing of any discharged employee and requiring the employer to state specific reasons for discharges. The railroads will recommend only one measure, a law prohibiting trespassing.

T. A. Polleys, tax commissioner of the Chicago & North Western, recently tabulated statistics for 50 of the larger railroads of the country, showing a comparison of railway taxes for the fiscal years of 1906, 1911 and 1916. The average taxes per mile

of road operated in 1906 was \$336; in 1911, \$440; and in 1916, \$578. The ratio of taxes to gross earnings was 3.22 per cent in 1906, 3.62 per cent in 1911, and 4.29 per cent in 1916. The ratio of taxes to net earnings was 9.47 per cent in 1906; 12.39 per cent in 1911, and 12.49 per cent in 1916.

The new union passenger station at Macon, Ga., is now used by the trains of all the railroads entering the city, the connection with the Southern Railway having just been completed. The Southern has trains using the station each day to the number of 24; the Central of Georgia, 38; the Georgia Southern & Florida, 14; the Georgia Railroad, 3; the Macon, Dublin & Savannah, 2; and the Macon & Birmingham Electric, 2.

The Republican majority in the New Jersey legislature is said to have decided to repeal the full crew law of that state. The Chamber of Commerce of the state has investigated casualty records and finds that there has been no reduction since the passage of the law. Of all accidents to persons on railroads, six-tenths of one per cent is given as the proportion due to the numerical insufficiency of train crews; while the law costs the railroads \$350,000 yearly.

The United States Civil Service Commission announces competitive examinations on February 7 for the positions of junior civil engineer, junior mechanical engineer, junior structural engineer and junior electrical engineer in the service of the Interstate Commerce Commission. The salaries will range from \$1,200 to \$1,680 a year for grade 1, and \$720 to \$1,080 a year for grade 2. A varying amount of railway experience will be required, according to the education of the applicant and the grade of the position applied for. Fifty per cent of the rating of applicants will be based upon an examination in the theory and practice of the particular subject involved, and 50 per cent on education, training and experience. Those desiring to take the examination can apply to the Civil Service Commission at Washington, D. C., or to the United States Civil Service Board at Chicago, Boston, Philadelphia, San Francisco, Seattle and other large cities.

Director Prouty, of the division of valuation of the Interstate Commerce Commission, has issued a statement to the roads to the effect that the work of the division of valuation is being seriously interfered with by the delay in the filing of completed land maps. The map order requires that completed maps shall be filed within 30 days after the date of valuation. Beginning July 1, 1917, no extension of time will be allowed except under very unusual circumstances unless the carrier prefers to make an arrangement whereby the carbon copies of the field notes are furnished to it, in which case 60 days from the date of delivery of the field notes will be allowed for the filing of completed maps. The director criticises the tendencies of the roads to delay the completion of the maps to the last, and urges that since every carrier now knows that it is to be valued at some time, and since most of them have received notice of the date of valuation, they give this subject attention at once and prepare their maps so as to have them ready when needed.

### Brothers Square Accounts With Conscience

The Chicago, Milwaukee & St. Paul has received two \$50 checks, which represent what two brothers in Minnesota received 15 years ago in excess of what they believed was the actual damage to their property as caused by the company. At that time a spark from a puffing freight locomotive set fire to a field of wheat belonging to the brothers, and following the presentation of their claim the railroad settled for the damages incurred. The money made it possible for one of the young men to study for the ministry. With the lapse of years the matter seemed to press the conscience of both men, and a few days ago, with apparently no knowledge of the action of the other, each brother remitted a check to the railway company.

### Disastrous Collision in Scotland

Cable despatches of January 3 report a collision near Edinburgh, Scotland, between a passenger train and switching engine in which 11 persons were killed and 40 injured.

### A Correction

In the table showing dividend changes published in the *Railway Age Gazette* of December 29, page 1175, through a typographical error a 5 per cent dividend was shown as having been declared on the Cleveland, Cincinnati, Chicago & St. Louis common stock. There was no dividend declaration on the common in 1916, but 5 per cent was declared on the preferred.

### Crossing Approach Signs on Southern Railway

In addition to the ordinary "Stop, Look and Listen" signs, the Southern Railway plans to install approach warning signs on highways 300 feet back from the tracks. Permission will be asked of county authorities. The signs will consist of the letters "R. R." and a cross painted in black on a white field, on cast iron disks 24 inches in diameter, mounted on pedestals 9 feet high.

### Valuation Progress

The Presidents' Conference Committee on the federal valuation of the railroads has issued a statement indicating that up to November 30, 1916, the field inspection had been undertaken on roads with a total mileage of 135,988, that the roadway and track parties had inventoried 89,549 miles of line and that the railways have been further inventoried with respect to bridges on 64,210 miles of line, with respect to buildings on 62,297 miles, with respect to signals on 55,885 miles, with respect to telegraph and telephone on 95,692 miles, and with reference to land on 31,002 miles of line. Owing to the largely increased volume of work confronting the committee, Thomas W. Hulme, general secretary, has been elected vice-chairman of the committee, and H. C. Phillips, assistant secretary, has been elected general secretary, effective January 1.

The Interstate Commerce Commission on Wednesday of this week gave out the tentative valuation of the Winston-Salem Southbound Railway.

### Canadian Passenger Service Curtailed

The congestion of freight at the Niagara frontier has become so severe that the Canadian Railway Commission has authorized the Grand Trunk and the Canadian Pacific to curtail passenger service in order to provide engines and men for freight service. The movement of munitions must be carried on punctually, at all cost. At a conference in Toronto, January 6, the discontinuance of passenger trains out of that city on a wholesale scale was agreed upon. No less than 49 trains—25 on the Canadian Pacific and the Toronto, Hamilton & Buffalo lines, and 24 on the Grand Trunk—will be discontinued on the 14th, when the new time tables become effective. The revised arrangement will be tried until April 30, though, if it shall be found necessary to restore some of the trains the railway officers will reconvene and consider applications.

The reduction of service is confined to west of Brockville and Ottawa, and the Toronto, Hamilton, London and Parry Sound divisions of the different lines. Another conference was to be held this week, at Ottawa, when the railway officers will discuss with the Dominion Railway Commission the advisability of reducing the passenger service between Toronto and Montreal.

Under the new arrangement upwards of 225 train employees will be available for the work of moving munitions and relieving the congestion in coal and general freight.

### American Society of Civil Engineers

The annual meeting of the American Society of Civil Engineers will be held at the United Engineering building, 25 West 39th street, New York, on January 17 and 18. The business meeting will be held at ten o'clock on the first day. In the afternoon there will be two excursions, one to points of interest in subway construction in the vicinity of the United Engineering building, and the other to Hell Gate bridge. There will be a reception at the house of the Society, 220 West 57th street, at 8:30 that evening. Thursday will be devoted to an all-day

excursion on the Hudson and East rivers. At eight o'clock that evening John Howard Whitehouse, M. P., will speak at the Society house on the Economic Conditions in England Due to the War.

### New York Railway Club

At the meeting of the New York Railroad Club on January 19 in the Engineering Societies building, 39 West 39th street, New York, a paper will be presented by Marcus A. Dow, general safety agent of the New York Central on "Accident Prevention." Mr. Dow will also show his motion picture, "The House That Jack Built."

### MEETINGS AND CONVENTIONS

*The following list gives names of secretaries, dates of next or regular meetings and places of meeting of those associated which will meet during the next three months. The full list of meetings and conventions is published only in the first issue of the Railway Age Gazette for each month.*

- AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—F. A. Pontious, 455 Grand Central Station, Chicago. Next meeting, January, 1917, New York.
- AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, 900 S. Michigan Ave., Chicago. Next convention, March 20-22, 1917, Chicago.
- AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 220 W. 57th St., New York.
- AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, Supt. Timber Preservation, B. & O., Mt. Royal Sta., Baltimore, Md. Next convention, January 23-25, 1917, Hotel Astor, New York.
- CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.
- CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.
- CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawlor Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Hotel La Salle, Chicago.
- CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual dinner, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.
- CINCINNATI RAILWAY CLUB.—H. Boutet, Chief Interchange Inspector, Cin'ti Rys., 101 Carew Bldg., Cincinnati. Regular meetings, 2d Tuesday, February, May, September and November, Hotel Sinton, Cincinnati.
- ENGINEERS SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 2511 Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh, Pa.
- GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.
- NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, 349 Peoples Gas Bldg., Chicago. Next convention, March 19-22, 1917, Chicago.
- NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr. 683 Atlantic Ave., Boston, Mass. Regular meeting, 2d Tuesday in month, except June, July, August and September, Boston.
- NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meeting, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.
- NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—Geo. A. J. Hochgrebe, 623 Brisbane Bldg., Buffalo, N. Y. Meetings, 3d Wednesday in month, New York Telephone Bldg., Buffalo, N. Y.
- PEORIA ASSOCIATION OF RAILROAD OFFICERS.—F. C. Stewart, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.
- RAILROAD CLUB OF KANSAS CITY.—Claude Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Saturday in month, Kansas City.
- RAILWAY BUSINESS ASSOCIATION.—Frank W. Naxon, 30 Church St., New York. Next annual meeting, January 16, 1917, Waldorf-Astoria Hotel, New York.
- RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Pittsburgh Commercial Club Rooms, Colonial-Annex Hotel, Pittsburgh.
- RICHMOND RAILROAD CLUB.—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.
- ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.
- SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grand Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 A. M., Piedmont Hotel, Atlanta.
- TOLEDO TRANSPORTATION CLUB.—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.
- TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.
- TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York. Regular meetings, last Tuesday in month, except June, July and August, Waldorf-Astoria Hotel, New York.
- UTAH SOCIETY OF ENGINEERS.—Frank W. Moore, 1111 Newhouse Bldg., Salt Lake City, Utah. Regular meetings, 3d Friday in month, except July and August, Salt Lake City.
- WESTERN CANADA RAILWAY CLUB.—L. Kon, Immigration Agent, Grand Trunk Pacific, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.
- WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Monday in month, except June, July and August, Hotel Sherman, Chicago.
- WESTERN SOCIETY OF ENGINEERS.—E. N. Layfield, 1735 Monadnock Block, Chicago. Regular meetings, 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August, generally on other Monday evenings. Annual meeting, 1st Wednesday after 1st Thursday in January, Chicago.

## REVENUES AND EXPENSES OF RAILWAYS

MONTH OF NOVEMBER, 1916

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses				Net from railway operation.	Railway tax accruals.	Operating income (or decr.) (comp. with last year).	Increase (or decrease) comp. with last year.			
		Freight.	Passenger.	Total (inc. misc.).	Maintenance of way and structures.	Traffic.	Trans- portation.	Miscel- laneous.							
Alabama & Vicksburg.....	143	\$121,876	\$39,514	\$176,040	\$11,143	\$26,095	\$3,083	\$71,716	\$2,488	\$5,469	\$119,871	\$56,170	\$44,670	\$10,870	
Alabama Great Southern.....	312	185,376	109,078	529,176	37,930	32,590	16,077	146,691	1,938	10,666	305,892	223,284	197,532	38,599	
Ann Arbor.....	302	282,223	44,176	494,176	22,117	36,897	5,081	92,288	1,388	8,327	170,339	72,133	58,735	30,786	
Atchafalaya.....	8,648	7,905,773	2,107,846	10,075,052	1,079,413	1,668,248	179,580	2,888,691	8,439	232,828	6,024,301	4,850,751	544,254	240,636	
Atlanta, Birmingham & Atlantic.....	640	267,416	56,006	347,015	49,748	47,542	14,096	110,231	18	10,519	232,154	114,861	97,961	.....	
Atlantic & St. Lawrence.....	167	85,606	18,429	114,181	29,956	26,723	4,463	84,745	.....	7,247	153,133	38,952	48,847	97,381	
Atlantic City.....	170	76,149	158,169	58,169	42,350	20,804	3,283	92,287	85	584	158,923	754	10,761	.....	
Atlantic Coast Line.....	4,748	2,352,926	727,174	3,486,206	387,540	545,085	65,298	1,038,606	9,095	78,145	2,121,508	1,224,699	1,059,204	176,954	
Bangor & Aroostook.....	632	283,960	63,273	368,415	46,582	35,539	3,656	96,798	3,727	14,116	223,912	144,503	130,843	38,380	
Bingham & Garfield.....	36	235,764	3,685	242,138	17,341	25,510	1,157	33,986	99	3,221	232,912	160,824	151,475	.....	
Buffalo & Susquehanna R. R. Corp.....	253	130,729	6,091	139,039	20,306	40,333	1,297	40,044	.....	6,173	108,154	30,885	28,285	28,868	
Canadian Pacific Lines in Maine.....	234	113,176	19,523	144,616	26,096	25,598	5,938	63,610	.....	4,742	125,984	18,632	9,532	10,697	
Carolina, Clinchfield & Ohio.....	283	288,052	19,507	314,579	25,500	45,040	17,690	55,527	.....	11,909	155,154	159,425	145,175	31,606	
Carolina, Clinchfield & Ohio of S. C.....	18	14,733	1,206	16,400	1,050	94	2,635	3,008	.....	1,067	7,854	8,547	7,797	242	
Central of Georgia.....	1,924	901,600	304,479	1,394,146	165,057	213,881	42,882	375,319	1,116	42,016	837,548	556,599	72,340	151,999	
Central of New Jersey.....	684	2,243,304	485,288	2,923,048	236,195	513,489	30,989	1,033,838	14,244	62,517	1,891,126	1,031,923	144,578	174,838	
Central New England.....	301	402,422	31,667	435,344	86,199	33,822	1,099	135,714	4,960	6,671	268,439	156,903	171,405	123,307	
Central Vermont.....	411	260,105	71,383	331,488	30,909	56,718	8,314	171,524	2,300	3,496	279,440	151,888	76,308	33,737	
Charleston & Western Carolina.....	342	153,431	33,999	197,144	28,740	21,902	4,626	67,295	.....	7,597	126,058	71,086	64,477	11,577	
Chicago & Eastern Illinois.....	1,136	1,148,168	243,075	1,514,497	162,481	385,151	28,053	521,173	7,397	40,931	1,141,318	373,179	63,570	76,163	
Chicago & Erie.....	270	606,605	37,032	697,168	49,602	77,184	19,045	301,264	2,589	17,276	464,750	232,417	34,048	198,369	
Chicago, Detroit & Can. Gd. Trunk Jctn.....	60	57,261	18,814	71,758	10,950	7,896	1,492	54,773	.....	1,492	76,550	19,230	3,487	15,743	
Chicago, Indianapolis & Louisville.....	622	488,562	138,253	717,426	121,977	77,426	22,293	226,653	663	16,615	465,989	246,669	30,968	215,335	
Chicago, Rock Island & Pacific.....	173	238,497	63,077	321,547	38,718	24,899	1,147	134,516	.....	28,111	194,123	31,623	2,812	28,811	
Chicago, Rock Island & Gulf.....	477	238,497	63,077	321,547	38,718	24,899	1,147	134,516	.....	8,755	198,008	123,538	7,152	10,507	
Chicago, Rock Island & Pacific.....	7,653	4,877,865	1,530,841	6,208,706	959,760	1,180,913	137,422	2,383,041	40,030	158,190	4,849,479	2,075,770	295,869	1,778,180	
Chicago, St. Paul, Minn. & Omaha.....	1,753	1,379,943	436,623	1,999,938	226,960	336,860	33,499	685,722	14,366	43,268	1,241,673	758,265	96,540	661,609	
Chicago, St. Paul, Minn. & Omaha.....	373	236,184	51,789	259,359	33,014	78,776	3,899	76,154	1,125	8,121	199,747	59,612	37,364	18,485	
Chicago, Terre Haute & Southeastern.....	622	675,294	94,191	871,550	136,255	146,570	16,222	349,893	3,000	20,490	672,916	198,635	31,641	166,910	
Cincinnati, Hamilton & Dayton.....	322	143,833	204,959	19,958	26,887	5,650	77,488	.....	.....	.....	137,083	67,876	8,941	58,935	
Cincinnati, Indianapolis & Western.....	337	863,739	178,597	1,095,605	83,672	202,306	23,347	281,446	5,875	18,832	615,480	480,125	54,000	160,529	
Cincinnati, New Orleans & Texas Pacific.....	338	170,196	12,233	191,997	19,556	36,398	6,937	83,010	350	5,261	152,012	39,985	9,000	15,288	
Colorado Midland.....	1,103	732,290	113,040	901,958	74,244	150,442	8,419	250,388	3,451	26,499	513,443	388,515	39,000	39,632	
Cripple Creek & Colorado Springs.....	87	98,024	11,404	110,537	7,981	15,863	2,676	25,815	.....	3,000	55,336	55,201	4,746	5,615	
Delaware & Hudson Co.—R. Dept.....	886	1,910,426	200,069	2,269,292	198,558	410,943	27,485	804,107	20,525	76,773	2,928,707	374,195	58,650	159,708	
Delaware, Lackawanna & Western.....	955	3,406,002	740,069	4,548,868	456,123	653,724	75,016	1,609,961	32,641	104,733	2,938,097	1,620,161	232,500	1,384,577	562,829
Denver & Rio Grande.....	2,578	1,946,632	317,242	2,411,846	188,016	38,827	2,079	67,712	24,614	52,618	1,321,737	1,090,109	98,000	992,082	9,641
Denver & Salt Lake.....	285	153,490	19,868	178,427	18,028	38,827	1,902	36,134	.....	5,167	125,812	52,615	42,615	9,651	
Detroit & Mackinac.....	393	67,635	27,363	103,071	11,796	21,202	1,902	36,134	.....	3,678	74,703	28,368	19,193	17,798	
Detroit, Grand Haven & Milwaukee.....	191	182,000	47,000	266,833	21,252	47,662	5,527	147,583	178	5,297	227,497	39,363	3,963	65,810	
Detroit, Toledo & Ironton.....	441	1,137,697	12,893	198,539	22,350	31,206	4,733	96,855	.....	6,539	161,684	36,855	6,000	30,854	
Duluth, Missabe & Northern.....	41	137,599	29,704	1,366,173	100,161	113,024	3,948	97,334	.....	13,918	501,997	75,956	68,879	29,925	
Duluth, South Shore & Atlantic.....	60	1,377,068	8,746	4,867,197	133,346	49,181	1,662	116,522	4,544	9,219	227,274	150,000	69,134	316,440	
Erie.....	1,986	4,373,601	753,278	5,660,687	437,936	1,279,474	93,609	2,208,569	36,296	101,818	4,156,218	1,502,137	154,782	1,043,326	
Florida East Coast.....	738	353,129	134,118	667,161	51,997	88,225	7,033	203,363	4,388	17,249	367,601	386,247	341,674	227,134	
Fort Worth & Denver City.....	454	474,463	131,335	632,366	48,181	83,248	6,923	174,353	3,115	15,939	331,759	300,577	18,000	282,518	
Galveston Wharf.....	14	.....	116,296	1,725	1,284	732	29,087	62,123	.....	372	54,173	62,123	10,300	282,518	
Grand Canyon Western.....	64	1,984	11,254	79,610	906	732	1,154	12,330	.....	166	21,287	1,950	1,832	51,823	
Grand Trunk Western.....	347	574,000	122,000	759,610	111,845	137,178	16,793	309,689	6,486	15,201	597,190	162,420	36,637	125,783	
Great Northern.....	8,192	1,266,195	1,266,195	6,671,518	8,217,518	956,305	97,836	2,321,167	83,133	123,670	4,139,624	4,077,894	544,496	3,532,847	1,722,075
Gulf, Colorado & Santa Fe.....	1,938	1,896,127	276,313	1,563,535	199,073	202,493	28,423	479,089	.....	49,496	947,126	516,409	58,758	559,673	
Hocking Valley.....	330	604,916	70,552	726,889	61,739	161,739	8,704	271,184	.....	28,598	604,129	266,760	46,000	220,746	
International & Great Northern.....	1,159	840,802	203,338	1,212,955	143,691	141,201	22,003	361,159	4,946	29,296	688,539	433,415	35,000	398,332	
Kan. C. Mex. & Orient Ry. Co. of Texas.....	466	102,918	132,163	1,218,163	16,032	23,445	3,960	56,036	.....	4,464	103,936	28,227	5,000	33,223	
Lake Erie & Western.....	900	562,956	52,339	647,096	51,535	119,543	16,173	208,980	.....	14,094	410,325	236,771	28,500	207,943	
Lehigh & Hudson River.....	97	156,437	3,503	174,984	28,079	22,436	1,494	63,883	.....	4,333	120,224	54,760	5,200	49,560	
Lehigh & New England.....	296	271,945	1,351	282,854	39,938	40,445	2,066	78,242	.....	7,397	168,012	114,842	9,720	43,039	
Los Angeles & Salt Lake.....	1,154	646,378													

## REVENUES AND EXPENSES OF RAILWAYS

MONTH OF NOVEMBER, 1916—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues				Operating expenses				Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total (inc. misc.)	Maintenance of way and structures.	Equip-ment.	Traffic.	Trans-portion.	Miscel-laneous.				
Nashville, Chattanooga & St. Louis.....	1,237	\$922,453	\$228,453	\$1,150,906	\$124,381	\$211,917	\$44,242	\$395,080	\$10,405	\$821,527	\$29,500	\$399,125	\$83,594
Nevada Northern.....	165	159,715	12,013	171,728	22,947	17,109	706	29,739	83	160,304	2,107	18,197	18,679
New Orleans & North Eastern.....	204	300,592	49,053	349,645	29,194	60,230	8,269	168,892	8,075	225,577	23,900	134,457	53,639
New York Central Railroad.....	6,073	12,119,455	4,033,897	18,579,835	1,868,788	3,482,086	239,477	6,304,085	277,464	6,092,806	827,946	5,264,103	1,346,847
New York, New Haven & Hartford.....	2,005	3,271,412	2,654,801	6,840,778	733,884	814,863	39,637	2,625,076	103,566	4,493,072	270,000	2,077,456	30,139
New York, Susquehanna & Western.....	140	183,563	47,652	231,215	24,502	33,933	1,699	118,882	.....	179,171	13,785	65,350	19,997
Northwestern Pacific.....	507	180,741	124,265	305,006	56,579	43,738	4,615	130,026	735	169,601	18,194	78,486	22,183
Oregon Short Line.....	2,254	1,943,012	404,399	2,347,411	217,584	227,650	31,247	563,125	31,247	1,883,782	186,100	1,527,610	250,908
Oregon-Washington R. R. & Nav. Co.....	2,052	1,228,828	366,991	1,595,819	284,660	148,168	42,052	535,472	12,858	1,060,291	94,050	508,203	119,465
Panhandle & Santa Fe.....	670	483,842	94,946	578,788	57,760	81,300	4,431	135,460	.....	314,524	17,079	297,446	50,854
Pere Marquette.....	2,249	1,509,766	324,946	2,034,712	208,845	412,846	38,324	750,128	4,232	1,458,859	50,725	505,658	168,355
Philadelphia & Reading.....	1,127	4,577,129	571,473	5,148,602	330,348	682,307	46,763	1,818,666	12,295	2,967,592	116,324	2,377,545	202,781
Pittsburgh & Lake Erie.....	225	1,784,505	167,052	1,951,557	149,469	339,744	18,013	502,674	5,021	1,069,596	84,400	923,880	198,457
Pittsburgh, Shawmut & Northern.....	205	1,88,009	5,073	1,930,082	19,434	39,782	1,176	38,970	.....	1,035,011	2,047	9,898	78,410
Port Reading.....	21	155,448	.....	155,448	14,908	19,524	.....	70,739	.....	103,501	10,000	62,831	43,105
Richmond, Fredericksburg & Potomac.....	88	169,411	95,028	264,439	33,265	32,973	4,103	112,501	2,305	103,302	12,631	93,670	5,366
Rutland.....	468	186,870	92,212	279,082	25,730	57,128	9,110	112,963	1,247	166,882	17,241	89,841	7,266
St. Joseph & Grand Island.....	258	162,573	24,371	186,944	23,244	25,947	4,860	62,035	650	121,612	7,920	67,080	14,561
St. Louis, Brownsville & Mexico.....	498	279,486	100,368	379,854	53,596	31,068	10,184	91,056	.....	195,987	8,000	195,142	145,668
St. Louis-San Francisco Ry. Co.....	4,752	3,247,772	1,058,038	4,305,810	563,098	748,015	60,037	1,399,038	.....	2,847,776	172,969	1,592,174	.....
St. Louis, Iron Mountain & Southern.....	3,555	2,763,443	713,235	3,476,678	549,774	517,606	69,479	926,620	9,643	2,121,062	136,600	1,454,231	355,346
St. Louis Merchants' Bridge Terminal.....	9	88,910	398	89,308	41,222	20,082	787	102,542	.....	177,519	10,476	47,781	2,538
St. Louis, San Francisco & Texas.....	244	359,009	90,433	449,442	19,688	126,247	1,932	41,791	.....	357,657	1,646	38,694	68,277
San Antonio & Aransas Pass.....	726	1,788,168	446,207	2,234,375	71,936	59,356	6,417	172,792	.....	322,284	20,000	134,670	68,277
Seaboard.....	3,459	5,044,131	1,429,132	6,473,263	1,024,539	921,173	162,714	2,143,202	10,152	4,452,602	105,500	855,019	.....
Southern.....	6,983	12,817,990	4,653,127	17,471,117	2,299,669	1,433,738	17,837	3,637,327	12,800	12,800,000	268,467	2,362,422	362,174
Southern in Mississippi.....	7,063	7,701,595	2,257,484	9,959,079	1,012,369	1,433,738	17,837	3,637,327	12,800	6,617,005	8,350	37,437	6,777
Southern Pacific.....	555	321,169	109,998	431,167	38,347	44,444	7,970	105,707	4,029	214,166	57,445	198,615	13,204
Spokane, Portland & Seattle.....	295	110,784	31,106	141,890	23,147	21,927	5,784	51,976	.....	109,014	4,572	36,668	20,437
Tennessee Central.....	37	.....	330	271,823	25,162	18,281	854	79,108	.....	127,910	40,536	103,377	15,473
Terminal R. R. Assn. of St. Louis.....	468	330,626	97,214	427,840	47,484	92,850	10,330	127,910	2,895	321,930	14,111	121,629	69,403
Texas & New Orleans.....	1,944	1,604,418	427,496	2,031,914	199,156	308,790	40,026	750,695	11,287	1,381,219	85,000	708,698	44,924
Toledo & Ohio Central.....	436	491,548	44,669	536,217	63,330	123,591	6,990	204,033	1,802	432,184	26,275	141,506	4,657
Toledo, Peoria & Western.....	248	59,678	33,910	93,588	15,044	31,943	2,860	37,914	.....	92,281	6,500	8,748	.....
Toledo, St. Louis & Western.....	451	481,278	535,260	1,016,538	100,789	75,330	17,810	171,373	10,007	372,665	19,000	143,596	42,166
Union Pacific.....	3,622	5,099,472	883,532	5,983,004	663,240	764,234	104,359	1,655,493	92,962	3,401,911	245,400	2,867,177	433,238
Union R. R. of Baltimore.....	32	188,772	26,911	215,683	17,469	12,952	.....	3,988	.....	195,419	9,165	132,981	8,169
Union R. R. of Pennsylvania.....	8	.....	459,960	459,960	31,177	12,952	.....	208,211	.....	36,275	10,000	82,684	78,908
Vandalia.....	917	903,521	232,753	1,136,274	132,993	21,927	24,403	430,017	12,686	89,232	54,848	380,256	124,558
Virginian, Shreveport & Pacific.....	171	111,374	62,258	173,632	17,972	28,566	3,784	48,103	2,231	105,837	15,500	72,625	25,768
Virginian.....	510	692,207	36,679	728,886	65,681	102,787	5,606	200,804	10,573	400,442	38,000	332,478	120,564
Wabash.....	2,519	2,602,407	561,896	3,164,303	314,632	452,835	95,248	1,215,022	16,922	2,153,741	108,844	1,755,559	324,653
Wabash-Pittsburgh Terminal.....	63	73,032	9,409	82,441	18,605	14,725	1,761	35,099	1,861	83,625	9,922	1,307	27,317
Washington Southern.....	36	56,327	54,708	111,035	15,316	16,824	1,614	50,316	1,061	88,550	5,980	52,943	13,117
West Jersey & Seashore.....	359	238,167	247,905	486,072	114,003	101,866	12,813	236,405	2,779	483,861	39,240	5,960	17,352
Western Maryland.....	273	903,938	73,990	977,928	111,502	160,501	24,078	345,804	13,150	678,217	33,500	341,319	90,706
Western Pacific.....	939	702,935	79,430	782,365	64,800	69,937	20,251	203,855	9,901	394,841	29,988	398,359	143,613
Western Ry. of Alabama.....	133	79,096	40,170	119,266	16,975	21,242	6,216	32,758	2,022	86,518	6,331	42,076	7,017
Wheeling & Lake Erie.....	512	670,109	50,598	720,707	107,381	120,026	9,219	281,515	1,570	536,518	41,940	207,230	78,096
Wichita Valley.....	257	82,312	24,240	106,552	19,473	11,018	98	30,440	.....	62,171	3,925	43,895	20,978
Yazoo & Mississippi Valley.....	1,382	1,254,267	371,440	1,625,707	211,263	161,847	19,441	413,465	2,349	837,046	57,000	805,129	275,844

FIVE MONTHS OF FISCAL YEAR, 1917

Alabama & Vicksburg.....	143	\$511,706	\$198,563	\$710,269	\$89,104	\$147,575	\$17,789	\$275,536	\$12,333	\$29,329	\$571,291	\$166,314	\$53,823
Alabama Great Southern.....	312	1,720,688	580,732	2,301,420	229,610	486,525	71,808	677,641	14,800	56,989	1,532,423	104,231	226,280
Ann Arbor.....	302	901,691	260,891	1,162,582	133,227	185,231	26,099	464,011	3,106	41,593	853,267	67,000	32,286
Archison, Topeka & Santa Fe.....	8,648	38,483,745	11,477,585	49,961,330	6,544,113	8,078,488	907,391	13,900,422	19,961	1,015,414	30,378,503	2,545,696	3,843,643
Atlanta & West Point.....	93	\$323,724	\$224,989	\$548,713	\$69,085	\$101,647	\$12,699	\$173,766	\$10,198	\$24,411	\$410,757	\$186,216	\$60,581
Atlanta, Birmingham & Atlantic.....	640	1,114,398	276,448	1,390,846	228,871	239,481	3,092	498,737	110	49,397	1,089,669	404,870	335,554
Atlantic & St. Lawrence.....	167	567,617	140,399	708,016	181,356	150,310	21,600	410,533	.....	26,329	790,209	49,475	128,693
Atlantic City.....	170	418,891	1,026,154	1,445,045	161,502	135,261	21,996	647,405	577	8,772	972,990	50,000	490,797
Atlantic Coast Line.....	4,748	9,798,079	3,439,975	13,238,054	1,929,023	2,605,618	291,169	4,800,068	41,663	380,775	10,035,776	812,000	1,294,814
Baltimore & Ohio.....	4,539	40,199,973	7,615,483	47,815,456	6,280,908	10,027,468	942,799	17,520,322	384,801	1,150,811	36,299,628	1,732,966	399,380
Baltimore & Ohio Chicago Terminal.....	79	.....	2,828	2,828	788,977	95,989	129,856	4,434	371,748	8,964	31,748	113,443	92,940
Baltimore, Chesapeake & Atlantic.....	88	435,668	224,373	660,041	66,335	152,362	8,266	322,027	.....	12,748	522,127	147,795	102,544
Bangor & Aroostook.....	632	1,176,025	323,183	1,499,208	223,490	270,856	19,668	419,285	18,743	65,024	1,016,307	577,000	139,565
Belt Ry. Co. of Chicago.....	31	5,600,199	188,315	5,788,514	99,771	170,167	7,427	552,178	.....	32,163	868,756	528,166	51,959
Bessemer & Lake Erie.....	205	1,338,328	188,315	1,526,643	410,560	1,006,658	57,252	1,327,400	.....	72,123	2,803,763	192,027	446,813
Bingham & Garfield.....	36	.....	15,215	15,215	116,344	128,543	5,123	160,830	.....	16,150	453,314	48,596	339,513

## Traffic News

George P. Wilson has been chosen as commissioner of transportation of the Philadelphia Chamber of Commerce, succeeding William A. Sproull.

The Minnesota Railroad and Warehouse Commission on January 2 denied the application of the railroads for increased demurrage charges applicable to intrastate traffic. The Montana Railroad and Public Service Commission also recently refused to grant an increase in demurrage rates. On December 27, the Michigan Railroad Commission issued an order providing for intrastate demurrage charges identical with those now applicable to interstate business, to become effective on three days' notice.

In the hearing on reconsignment charges before the Illinois Public Utilities Commission at Chicago on Wednesday C. W. Galligan, assistant freight traffic manager of the Chicago & Alton, testified that in one week in November over 200 cars of coal were held a total of about 850 days in the Glen yards, Chicago, waiting for reconsignment orders. J. F. Porterfield, superintendent of transportation of the Illinois Central, testified that the average cost of reconsigning a car at Mendota (Illinois) was 40 cents for clerical work plus \$250 for switching.

The Railroad Commission of Texas held a hearing on January 9, to consider proposed advances in intrastate demurrage rates. The Corporation Commission of Oklahoma will hold a hearing on January 16, for the purpose of considering a similar application of the railroads for an increase in demurrage charges. At the instance of the Society of Equity, a farmers' organization, the legislature of North Dakota passed a resolution on January 6, asking the Interstate Commerce Commission to hold a hearing at St. Paul, Minn., on the new demurrage charges.

In accordance with the understanding reached at the conference at Washington on December 20 and 21 between representatives of the railroads and the shippers to consider proposed changes in the reconsignment rules, the railroads have filed with the Interstate Commerce Commission with a request that they be put into effect on short notice, new rules for reconsignment and diversion. These provide charges ranging from \$2 to \$5 a car. These new tariffs were prepared at a meeting of traffic officers in Chicago on December 28 and copies were sent to F. B. Dow, examiner-attorney for the commission, to be sent by him to trade organizations and shippers. The purpose is to reach some kind of a compromise basis which will be satisfactory to the shippers and the commission, but which will prevent undue detention of cars by abuse of the reconsignment privilege. The tariffs first proposed by the railways were vigorously opposed by the shippers.

The Bureau of Navigation, Department of Commerce, reports that during the calendar year 1916 American shipyards built 1,163 merchant vessels of 520,847 gross tons which have been officially numbered for American shipowners. American shipbuilders also built 50 vessels of 39,392 gross tons for foreign owners, making a total output of 1,213 vessels of 560,239 gross tons for the twelve months. The record output for the United States was 614,216 gross tons built during the 12 months ended June 30, 1908, and the 1916 record was also exceeded during the fiscal year 1855 when 583,450 gross tons were built, all of wood, except 7 iron vessels of 1,891 gross tons. Of the 1916 output 152 vessels of 414,029 gross tons were built of steel, which was exceeded by the output of 149 steel vessels of 450,017 gross tons during the fiscal year 1908. The output of that year, however, was mainly for the Great Lakes, while most of the steel tonnage of 1916 has been built for the ocean foreign trade. For the first 9 months of 1916 ocean steel merchant tonnage of American shipyards exceeded by 30,000 tons the British output, but after May 30 the British yards began to increase work on merchant shipping.

## Commission and Court News

### INTERSTATE COMMERCE COMMISSION

The commission has suspended until May 5 proposed increased rates on vegetables from St. Paul, Minn., and points taking the same rates, to Meridian, and Jackson, Miss.

Examiner Wilbur LaRose, Jr., began hearings in New York City, on Tuesday last on the petition of the New Jersey State Board of Commerce and Navigation, supported also by numerous Jersey City interests, for a reduction in the rates on freight from western points to Jersey City, Hoboken, and other points on the west side of New York harbor. Rates from western points are the same to New York as to Jersey City; but to the railroads terminating on the west side of the Hudson river, the cost is approximately 3 cents per 100 lb. more to New York, this being the cost of the water transfer. The New Jersey people declare that their rates should be made less than those to New York by the amount of the cost of the transfer across the river or bay. Complaint is also made that carload shipments, reconsigned from New Jersey terminals, are taken to points in the harbor, by water, at \$2 a car, whereas cars reconsigned to points in New Jersey must pay \$5 a car. The first witness for the petitioners was Calvin Tomkins, former dock commissioner of New York City, who is the author or sponsor of elaborate plans for improving the freight facilities of the harbor. On cross-examination, Mr. Tomkins said that he had manufacturing interests in New Jersey and also was financially interested in a port development project on the New Jersey side of the harbor. J. Spencer Smith, president of the New Jersey State Board of Commerce, proposed at the hearing that the railroads terminating in New Jersey should pool their interests, as against the New York Central. The New York Central reaches New York City without going through New Jersey. The governments of New York City and State and the mercantile organizations of the city are opposing the New Jersey petition; but the business interests of Staten Island, which is a borough of New York City, are siding with New Jersey. Staten Island, on the west side of the harbor, is very close to New Jersey.

### Rice from California

*Opinion by Commissioner Harlan.*

A proposed carload rate of 60 cents per 100 lb. on rice from California to the Missouri river and intermediate territory as far back as Colorado and New Mexico is found justified. (42 I. C. C., 437.)

### "Two for One" and "Follow Lot" Rules

*In re furnishing cars at carrier's convenience. Opinion by Commissioner McChord:*

The commission finds not justified a proposed cancellation of application of "two for one" and "follow lot" rules to certain rail-and-water rates from California ports to Atlantic ports, depressed by all-water rates. (42 I. C. C., 380).

### Lake and Rail Rate Cancellations (No. 2)

*Opinion by Commissioner Harlan:*

The commission finds that the carriers have not justified a proposed cancellation of joint rail-lake-and-rail class and commodity rates from points in the East to points south and west of the Great Lakes now maintained by the rail carriers in connection with the boat lines operating on the lakes, the Cleveland & Buffalo Transit Company and the Detroit & Cleveland Navigation Company.

More than a year has elapsed since the commission decided, in *Lake Line Applications Under Panama Canal Act*, 33 I. C. C., 699, that the eastern rail carriers should not be allowed to operate steamship lines on the great lakes. Subsequently to that decision the rail carriers, with certain exceptions disposed of their interests in their respective boat lines and filed tariffs providing

for the discontinuance of the through service in which they and their affiliated lake lines had theretofore been jointly engaged. At least 16 of the boats previously owned by the trunk lines have since been taken from the lakes and are now in the trans-Atlantic service, while more than 30 of them have been purchased by a recently organized company known as the Great Lakes Transit Corporation.

At the time of the hearing in this proceeding only two of the so-called independent boat lines, the Cleveland & Buffalo Transit Company and the Detroit & Cleveland Navigation Company, were engaged in the transportation of package freight from points in the east to points south and west of the Great Lakes under joint rail-lake-and-rail rates with the eastern trunk lines. Two boat lines owned by railroads were similarly engaged, namely, the Lehigh Valley Transportation Company, which was operating under an injunction temporarily relieving the Lehigh Valley Railroad Company from the effect of the commission's order in the case above cited; and the Canada Atlantic Transit Company, owned by the Grand Trunk Railway Company of Canada, the commission having vacated its order denying that carrier permission to continue the operation of its boat line on the lakes. Subsequently to the hearing the temporary injunction issued at the instance of the Lehigh Valley Railroad Company was dissolved. *Lehigh Valley Railroad Co. v. United States*, 234 Fed., 682. The Great Lakes Transit Corporation is now operating, but it is engaged principally in port to port service, and as yet it has not joined with the trunk lines in establishing rail-lake-and-rail rates to the territory involved in this proceeding (42 I. C. C. 513).

#### Coal for Pennsylvania Mines

*Ford Collieries Company, et al. v. Bessemer & Lake Erie, et al. Opinion by Commissioner McChord:*

Increased rates on bituminous and cannel coal in carloads from group 2 points in the Freeport district of Pennsylvania on the line of the Bessemer & Lake Erie to destinations in eastern New York, New England, and the province of Quebec, Canada, are found to be properly aligned with rates on similar coal from neighboring mines on other lines of railroad to the same destinations. Complaint dismissed and orders of suspension vacated. (42 I. C. C., 200).

#### Transcontinental Rates

Briefs are to be filed with the Commission on January 15 in the transcontinental freight rate cases, hearings on which were concluded at Spokane on December 15. A compromise advance in westbound rates of 10 cents per 100 lb. in carloads and 25 cents for less than carloads became effective on December 30 when the commission declined to suspend the tariffs. The compromise basis was proposed by the carriers as a temporary substitute for the advanced rates filed to become effective on September 1 in compliance with the commission's last order in the case. A more permanent settlement will be attempted as the result of the hearings recently concluded.

#### Export Rates on Agricultural Implements

*National Implement & Vehicle Association of the United States et al. v. Baltimore & Ohio et al. Opinion by Commissioner Hall.*

The commission finds that the carload rates on agricultural implements from points in trunk line and central freight association territories to the North Atlantic ports for export are not unreasonable. The present export rate from Chicago to New York is 28 cents, minimum weight, 30,000 lb., comparing with a domestic rate of 31.5 cents, minimum weight 24,000 lb. The exporters brought up the difficulties of competing abroad and also showed that the carloading was much heavier, the packing much stronger and as a result the freight claims much lower. They also showed that the annual volume of movement was large, the haul long and the movement concentrated, the business at certain seasons being tendered in trainload loads. The commission, on the other hand, brought up that the earnings at the present rates were not excessive and decided that a greater difference between domestic and export rates should not be required. (42 I. C. C., 461.)

### STATE COMMISSIONS

At a hearing before the State Public Utilities Commission of Illinois at Chicago, on January 5, the railroads proposed the adoption of reconsignment regulations on carload freight identical with those offered before the Interstate Commerce Commission, with the exception that they asked that they be made applicable, in intrastate traffic, only to anthracite and bituminous coal, coke and coal briquettes. B. J. Rowe, coal traffic manager of the Illinois Central, offered evidence to show that the repeated reconsignment of coal cars is a widespread practice. The hearing was continued.

The New York State Public Service Commission, second district, has issued a report on its inquiry as to the reasonableness of the notice given by the Delaware & Hudson and the New York Central of changes in time table between Albany and Troy on the 4th of December. The two roads, jointly, run "belt line" trains between these cities—six miles apart—and for many years have run these trains every 30 minutes for about 18 hours every day. The patronage having shrunk severely, a large number of trains were taken off, and the notice was not issued to the public until about three days before the change took effect. The commission concludes that the roads deliberately aimed not to take the public into their confidence, with regard to the proposed change; and it is characterized as a "most high-handed proceeding, in absolute disregard of the rights of the public and of the duty which common carriers owe to the public to give reasonable and adequate service." To make such a radical change without giving the public a chance to protest was inexcusable. The commission thinks of requiring all railroads to give seven days' notice of proposed changes in time tables, and also to inquire further as to the reasonableness of this diminution of passenger service between Albany and Troy.

#### New York Annual Report

The tenth annual report of the New York State Public Service Commission, second district, was issued this week. It calls attention to important changes in the powers of the commission effected by recent court decisions. The Court of Appeals in the Ulster & Delaware case held that the commission had power upon proper showing to permit an increase of the mileage book rate above two cents a mile, notwithstanding the "mileage book law" which restricted it to that figure. The court held that the Public Service Commissions Law of 1907 superseded all previous enactments and gave the two commissions (first district and second district) absolute power over rates. In the New York and Queens Gas case the court held that the Appellate Division of the Supreme Court has not the power to review the reasonableness of a decision of the commission, but only to annul the order for some violation by the commission of a rule of law. Under the "Jitney Bus Law," as interpreted by the courts, the commission has established the policy that no jitneys will be permitted to compete with existing street railways which are giving reasonable service.

All of the New York Central's electric zone in Westchester county has now been freed of grade crossings, except at Tarrytown. Among important crossings now being eliminated is that at Harlem avenue, outside of Buffalo, at which 57 tracks of three railroads cross one of the main highways into Buffalo.

The report repeats the request, contained in a recent decision, for power over the physical surroundings of grade crossings. In a number of cases the commission has found that the removal of brush or other obstructions to vision would make the crossing as safe as reason would require.

The commission asks for additional inspectors in the division of light, heat and power to inspect the vast overhead electrical construction of the state, much of which is known to be in a condition so unsafe as to be a menace to life as well as to continuity of service. It also asks for an appropriation to help support the Bureau of the National Association of Railway Commissioners, now engaged in taking care of the interests of the various states in the Interstate Commerce Commission's physical valuation of common carriers. The report contains the usual statistics. The accident figures show no great change, despite the great increase of business during the year.

An appropriation is asked, for this year, of \$421,000 as against \$404,000 last year, and the legislature is urged to repeat its appropriation for grade crossing elimination work. Many important eliminations are now pending for which no funds are available.

### PERSONNEL OF COMMISSIONS

Dwight M. Lewis has been appointed a member of the Iowa Board of Railroad Commissioners, succeeding Clifford Thorne, resigned.

J. A. Guiher, a member of the Iowa Board of Railroad Commissioners, has been appointed chairman of the board, succeeding Clifford Thorne, resigned.

Confirmation of Winthrop M. Daniels of New Jersey, to succeed himself as a member of the Interstate Commerce Commission was voted by the Senate on Wednesday night. The vote, taken after opposition had delayed action for nearly a month, stood 42 to 15. All of the Senators of the so-called progressive wing of the Republican party and one Democrat, Senator Hollis, voted in the negative. Fourteen Republicans joined the Democrats voting for confirmation.

Edward D. Chassel, the announcement of whose appointment as Railroad Commissioner of Iowa, to succeed the late James H. Wilson, was made in the issue of December 8, was born on May 25, 1858, in Oneida county, N. Y. In early life he settled with his parents on a farm near Iowa Falls, Ia., where he grew to young manhood. In 1882 he graduated from the Iowa State Teachers' College, and for a while taught school, closing his teaching experience as principal of the schools of St. Ansgar, Iowa. In 1884 he engaged in newspaper work as editor of the Osage (Iowa) News, and later became editor and publisher of the Le-Mars (Iowa) Sentinel. From 1889 to 1906 he was in the general publishing and blank book business. In 1894 he was elected to the state legislature, and was re-elected to this same body in 1904 and 1906. From 1907 to 1913 he was state binder, and directly thereafter engaged in the real estate business. More recently he has been the manager of a large group of farms. His appointment as railroad commissioner of Iowa became effective December 1, 1916.



E. D. Chassel

### COURT NEWS

#### Railways Win Advantage in Illinois Passenger Case

The first phase of the hearing before Federal Judges Evan Evans, George A. Carpenter and Kenesaw M. Landis, at Chicago, on the application of the railroads for an order enjoining the State Public Utilities Commission of Illinois from interfering with new passenger rates of 2.4 cents a mile in Illinois, terminated on January 6, with the advantage with the carriers. In the opinion of Judge Carpenter the case is the greatest law suit that has arisen in the country for a great many years. The court denied the cross bill of the State Public Utilities Commission asking that the supplemental order of the Interstate Commerce Commission be set aside and that both orders be suspended, on the ground that the only court with jurisdiction to attack, modify, enforce or annul an order of the commission is, in this particular instance, the United States District Court for the eastern district of Missouri, the district where the petitioner (the Business Men's League of St. Louis) resides. The majority of the court also denied the motion of the attorney general of the United States to dismiss the application for an injunction for want of

jurisdiction, on the ground that it was an action to enforce an order of the Interstate Commerce Commission, and that the only court that could entertain such an action was that for the eastern district of Missouri. Certain portions of a motion by the carriers to strike out parts of the answer of the defendants were granted, among which was the allegation that the petition of the Business Men's League of St. Louis to the Interstate Commerce Commission had not been made in good faith for the purpose of removing an unjust discrimination against St. Louis; that the action had been started at the instigation of the carriers themselves for the purpose of accomplishing an advance of passenger fares and freight rates in Illinois for their own benefit. The contention of the defendants that there was no substantial evidence before the Interstate Commerce Commission to support its supplemental order of October 17, was also stricken out by the order of the court.

The application for a temporary injunction was denied by the court, on the grounds that the case would finally be disposed of before January 15, when the new tariffs are to become effective. On January 9, the hearing on the application of the carriers for a permanent injunction was opened before Judge Landis. The nature of this proceeding is such that only one judge is required to sit.

### UNITED STATES SUPREME COURT

The Supreme Court of the United States on January 8 held valid the orders of the War Department requiring reconstruction of the Louisville & Nashville bridge across the Ohio river at Ohio Falls, at an additional cost of \$400,000 to improve navigation. An injunction prohibiting reconstruction except according to War Department plans was affirmed.

The court decided that the Lake Shore & Michigan Southern, the Michigan Central, and the Chicago, Indiana & Southern are not entitled to damages for cost of new bridges over the Little Calumet river, near Gary, Ind., made necessary by the Calumet drainage project.

#### Sweeping Prohibition of Interstate Liquor Traffic

The Supreme Court of the United States on Monday last upheld as constitutional and valid the Webb-Kenyon law, prohibiting shipments of liquor from "wet" to "dry" states. It also sustained the recent law of West Virginia prohibiting importation in interstate commerce of liquor for personal use. Chief Justice White announced the majority opinion, to which Justices Holmes and Van Devanter dissented. Justice McReynolds, while agreeing with the majority decision, did not concur in the opinion.

The decision says:

"The all-reaching power of government over liquor is settled. . . . The purpose of this act was to cut out by the roots the practice of permitting violation of state liquor laws. We can have no doubt that Congress has complete authority to prevent paralyzing of state authority. Congress exerted a power to co-ordinate the national with the state authority."

The court holds, according to an official abstract of the decision—"That the West Virginia law, besides prohibiting the manufacture and sale of all intoxicants except as to that which is permitted for medical, sacramental and manufacturing purposes, also forbids all transportation of liquor and all receipt and possession of liquor transported in the state, whether originating in or outside of the state; and, although it does not prohibit personal use, puts serious restrictions upon the power to obtain for such use. . . ."

"It is decided that Congress had the power under the Constitution to adopt the Webb-Kenyon law, whether considered from the point of view of original reasoning or in the light of the previous legislation by Congress and the decisions of the court holding that legislation valid. It is therefore decided that, by virtue of the Webb-Kenyon law, there is no power to ship intoxicants from one state into another in violation of the prohibitions of the law of the state into which the liquor is shipped. The channels of interstate commerce may not be used to convey liquor into a state against the prohibitions of its laws, or to use interstate commerce as the basis for a right to receive, possess, sell or in any manner use liquor contrary to the state prohibition."

## Railway Officers

### Executive, Financial, Legal and Accounting

S. F. Ruth has been elected auditor of the Minneapolis & Rainy River, with headquarters at Deer River, Minn., succeeding F. A. Bill, retired.

Meade T. Spicer, assistant secretary of the Chesapeake & Ohio at Richmond, Va., has been appointed executive assistant with office at Richmond.

H. W. Oliver has been appointed auditor of the Georgia Southern & Florida, with office at Macon, Ga., succeeding W. F. Buchannon, resigned to accept service elsewhere.

J. F. Pickard has been appointed assistant treasurer of the Atlanta, Birmingham & Atlantic with office at Atlanta, Ga., vice W. E. Paschall, resigned to engage in other business.

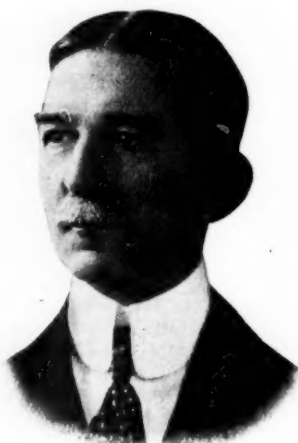
J. W. Orr has been appointed auditor of the Ohio River & Western, with office at Woodsfield, Ohio, succeeding Charles A. Brown, resigned to accept service with the Pennsylvania Lines.

F. E. Winburn, freight claim agent of the Atlanta & West Point, and the Western Railway of Alabama, has been appointed general claim agent, with office at Atlanta, Ga., and the office of freight claim agent is abolished.

T. B. Hamilton, general manager of the Vandalia at St. Louis, Mo., has been elected resident vice-president of the Pittsburgh, Cincinnati, Chicago & St. Louis, with headquarters at St. Louis.

Benjamin McKeen, general manager of the Pennsylvania Lines West, with office at Pittsburgh, Pa., the announcement of whose election as fifth vice-president, with the same headquarters, was made in these columns in the issue of December 29, was born at Terre Haute, Ind., on January 23, 1864. He attended Worcester Polytechnic School in 1881 and 1882, and then entered Rose Polytechnic Institute, from which he graduated in 1885 with the degree of mechanical engineer. In September, 1885, he took employment with the Terre Haute & Indianapolis (Vandalia) as a draftsman in the office of the superintendent of motive power and machinery at Terre Haute, Ind. From this time up to April, 1886, he was rodman on the engineering corps of this road, and from April, 1886, to January, 1887, resident engineer in charge of construction work on the Terre Haute & Logansport, also a part of the Vandalia. On January 1, 1887, he was appointed engineer maintenance of way of the Logansport division of the Terre Haute & Indianapolis, being also made chief engineer of construction in completing the Indiana & Lake Michigan in 1889. From January, 1894, to June, 1901, he was superintendent of the Peoria division of the Terre Haute & Indianapolis, and from the latter date to April, 1902, superintendent of the main line division of this same road. In April, 1902, he was appointed superintendent of the Chicago terminal division of the Pennsylvania Lines West of Pittsburgh, and in December, 1903, he was appointed general manager of the Terre Haute & Indianapolis, and its successor, the Vandalia. He was appointed general manager of the Pennsylvania Lines West of Pittsburgh on January 1, 1913, which position he held at the time his present election, as noted above, became effective.

W. B. Biddle, first vice-president of the St. Louis-San Fran-



B. McKeen

cisco at St. Louis, Mo., has been elected president, succeeding W. C. Nixon, deceased. E. D. Levy, second vice-president and general manager at Springfield, Mo., has been elected first vice-president. N. M. Rice, third vice-president and chief purchasing officer at St. Louis, has been elected second vice-president. Mr. Levy has been elected also a director.

J. O. Crockett, having resigned as vice-president of the Mexico Northwestern on January 1, 1917, that position has been abolished, and the duties performed by him will be assumed by J. J. Pruett, general manager; Walter Clarke, having resigned as assistant treasurer, that position has been abolished, and hereafter the duties performed by him will be assumed by O. W. Borrett, controller, with office in Ciudad Juarez, Chih., Mexico, and all correspondence in connection with the treasury department should be addressed to him. C. K. Jameson has been appointed auditor.

### Operating

E. J. Hardy has been appointed trainmaster on the Butte division of the Great Northern, with office at Great Falls, Mont., vice J. E. Teague, assigned to other duties.

H. C. McMaster has been appointed superintendent of the Mexico Northwestern, with office at Ciudad Juarez, Chih., Mex., and G. W. Young has been appointed car accountant, vice C. F. Myers, resigned.

David Francis Crawford, general superintendent of motive power of the Pennsylvania Lines West, with office at Pittsburgh, Pa., announcement of whose appointment as general manager was made in these columns last week, was born on December 4, 1864, at Pittsburgh, Pa. He was educated in the public schools of that city and at the Pennsylvania Military Academy. He entered railway service in April, 1880, with the Pittsburgh, Fort Wayne & Chicago as a clerk in the freight department. From December 1, 1885, to December 1, 1889, he was an apprentice in the Altoona shops of the Pennsylvania, and was then appointed inspector in the test department, holding this latter position up to February 1, 1892, when he was promoted to assistant master mechanic of the Fort Wayne shops, at Fort Wayne, Ind. From July 1, 1895, to November 1, 1899, he was assistant to the superintendent of motive power at Fort Wayne, and from November 1, 1899, to August 1, 1903, he was superintendent of motive power, with the same headquarters. On August 1, 1903, he was appointed general superintendent of motive power of the Pennsylvania Lines West, with office at Pittsburgh, Pa. He succeeds Benjamin McKeen as general manager, with the same headquarters, as noted above.



D. F. Crawford

E. T. Kennan, assistant superintendent of car service of the Pennsylvania Lines West, at Pittsburgh, Pa., has been appointed superintendent of car service, vice W. M. Prall, retired under the pension department regulations.

W. Stephenson has been appointed assistant superintendent and E. W. Bissell, chief despatcher, of the St. Louis-Southwestern at Illmo, Mo.; E. M. Cooper, assistant superintendent at this point, is transferred to Pine Bluff, Ark.

Ora H. Hobbs has been promoted to supervisor of refrigeration of the Baltimore & Ohio, with headquarters at Baltimore, Md. Mr. Hobbs was formerly a superintendent and more recently was on the staff of the operating executive of this road.

F. G. Bennett, acting superintendent of transportation of the Atlanta & West Point, and the Western Railway of Alabama, at

Montgomery, Ala., has been appointed superintendent, with office at Montgomery, and the office of acting superintendent of transportation is abolished.

F. E. Martin has been appointed trainmaster of the Chicago, Rock Island & Pacific, with headquarters at Estherville, Ia.; H. A. Houston has been appointed trainmaster at Sibley, Ia., succeeding A. N. Williams, resigned to go with another company.

H. F. Anderson, general manager of the Missouri, Kansas & Texas, with headquarters at Dallas, Tex., has been appointed general manager of the lines north of the Red river, with office at Parsons, Kan. He will be succeeded as general manager at Dallas by W. E. Williams, now general manager at Parsons, Kan.

R. D. Fitzmaurice, superintendent of the Providence division of the New York, New Haven & Hartford, at Providence, R. I., has been appointed assistant general superintendent of the Eastern Grand division, with headquarters at Boston, Mass., and George A. Poore, chief clerk to the general manager at New Haven, Conn., has been appointed superintendent of the Providence division, succeeding Mr. Fitzmaurice.

C. B. Gorsuch, superintendent of the Baltimore & Ohio at Pittsburgh, Pa., has been transferred to Baltimore in the same capacity, succeeding P. C. Allen, resigned to engage in other business. T. J. Brady, trainmaster at Glenwood, Pittsburgh, has been promoted to superintendent at Pittsburgh, succeeding Mr. Gorsuch. C. W. Van Horn, assistant superintendent at Pittsburgh, has been promoted to superintendent at New Castle, Pa., succeeding T. E. Jamison, assigned to other duties, and W. M. Haver succeeds Mr. Van Horn as assistant superintendent at Pittsburgh.

#### Traffic

Wm. J. Pitt has been appointed assistant general freight agent of the Merchants & Miners Transportation Company, with headquarters at Baltimore, Md.

O. L. Kinney, city passenger agent of the Pere Marquette at Chicago, Ill., has been appointed district passenger agent, with headquarters at Toledo, Ohio, succeeding W. C. Tousey, resigned.

W. R. Eastman has been appointed general agent, passenger department, of the Central Vermont and the Grand Trunk, with office at Boston, Mass., succeeding E. H. Boynton, New England passenger agent, retired.

W. L. White, traveling freight and passenger agent of the Salt Lake & Utah, with headquarters at Salt Lake City, Utah, has been appointed general freight and passenger agent, effective January 1, with the same headquarters.

W. I. Lightfoot, assistant general passenger agent of the Nashville, Chattanooga & St. Louis at Nashville, Tenn., has been appointed general passenger agent, vice W. L. Danley, appointed passenger department assistant to the traffic manager.

F. L. Wemple, general freight and passenger agent of the Mexico Northwestern at Ciudad Juarez, Chih., Mexico, has resigned, effective February 1, 1917, to take service elsewhere, and F. J. Clark has been appointed general freight and passenger agent, effective January 1, 1917.

Joseph Weed, chief clerk to the coal freight agent of the Pennsylvania Railroad at Philadelphia, Pa., has been appointed general freight agent of the Cumberland Valley Railroad, with office at Chambersburg, Pa., vice R. R. Blydenburgh, transferred to division freight agent, West Jersey & Seashore Railroad.

C. H. Mitchell, district freight and passenger agent of the Chicago, Milwaukee & St. Paul at Great Falls, Mont., has been appointed division freight and passenger agent, with headquarters at Butte, Mont., succeeding W. J. Keeley, assigned to other duties. He will be succeeded at Great Falls by H. R. Wahoske, with the title of division freight and passenger agent.

D. M. McGeen has been appointed commercial agent of the Chicago, Milwaukee & St. Paul at Butte, Mont., with joint supervision over the traffic of that road and the Butte, Anaconda & Pacific. H. L. McLaughlin has been appointed assistant general agent, freight and passenger department, at Seattle, Wash., and R. L. Ford, commercial agent at Everett, Wash.

B. E. Morgan, general freight agent of the New York, Chicago & St. Louis, with office at Cleveland, Ohio, has been appointed

freight traffic manager, with the same headquarters, the former position having been abolished. Edward Kluever has been appointed assistant general freight agent, with office at Cleveland, Ohio; J. H. Grant, assistant general freight agent, has been appointed chief of the tariff bureau, also with office at Cleveland.

L. V. Bruce, commercial agent of the Grand Trunk Pacific at Vancouver, B. C., has been appointed division freight agent at Edmonton, Alta, succeeding A. E. McMaster, resigned to accept service with another company. Albert Davidson, general agent at Prince Rupert, B. C., has succeeded Mr. Bruce as commercial agent at Vancouver, B. C., and J. D. McAuley, traveling freight and passenger agent at Juneau, Alaska, succeeds Mr. Davidson, with the title of commercial agent.

Charles H. Morehouse, division freight agent of the Atchison, Topeka & Santa Fe, with office at Denver, Colo., has been appointed eastern freight agent, with headquarters at New York City, succeeding Robert H. Mills, resigned to accept service with another company. Mr. Morehouse has been succeeded by E. R. Leis, now general agent at Salt Lake City, Utah. R. M. Bachellor, division freight agent at St. Joseph, Mo., has been appointed general freight and passenger agent, with same headquarters.

C. E. Carlton, general agent of the Gulf Coast Lines at Chicago, Ill., has been appointed general eastern agent, with headquarters at New York City. This is a newly-created position, and the jurisdiction of Mr. Carlton will extend over the states of New York, New Jersey, Pennsylvania, Maryland, Delaware, Virginia, West Virginia, the District of Columbia and the New England states. R. C. Foote, traveling freight agent at Chicago, succeeds Mr. Carlton, and W. R. Butler, soliciting freight agent at Chicago, succeeds Mr. Foote, with the same headquarters as at present.

George Stephen, the announcement of whose promotion to freight traffic manager of the Canadian Northern, effective November 6, 1916, with office at Winnipeg, Can., appeared in these columns in the issue of December 15, was born on July 5, 1876, at Port Arthur, Ont. He entered railway service with the Canadian Pacific in June, 1889, as a clerk in the foreign freight department. In September, 1899, he was appointed chief clerk in the general freight office at Winnipeg, Can., and from July to December, 1900, he was traveling freight agent. From January to June, 1901, he was contracting agent in the Kootenay district in British Columbia, and from June, 1901, to December, 1906, he was chief clerk in the general freight office at Winnipeg, Can. In December, 1906, he was appointed assistant general freight agent of the Canadian Northern, holding this connection until May, 1909, when he was promoted to general freight agent. He was made assistant freight traffic manager on March 1, 1916, which position he left to become freight traffic manager, as noted above.

#### Purchasing

Eugene McAuliffe, general fuel agent of the St. Louis-San Francisco, with office at St. Louis, Mo., has resigned, effective February 1, to become vice-president of the West Kentucky Coal Company of Paducah and Sturgis, Ky. He was born in 1866, at London, Eng., coming to this country as a young boy. In 1884 he entered railway service with the Northern Pacific as a shop apprentice. Later he was advanced to locomotive fireman and then to engineer with this same company. Subsequently he spent five years in the mechanical and operating departments of various railroads in the United States and Mexico, and in 1894 entered the service of the Kansas City, Ft. Scott & Memphis, now a part of the Frisco system, being appointed full agent in 1903. In 1908 he was appointed general fuel agent of the Chicago, Rock Island & Pacific, the St. Louis-San Francisco and the Chicago & Eastern Illinois jointly, at about the same time becoming president of the Brazil Block Coal Company, and in 1910 general manager of the Crawford Valley Mining Company. He organized the Railway Fuel Association, of which he was president in 1908 and 1909.

#### Engineering and Rolling Stock

A. A. Miller has been appointed engineer maintenance of way of the Missouri Pacific, with headquarters at Little Rock, Ark., succeeding R. C. White, promoted.

C. Gribbins has been appointed division master mechanic of the Smiths Falls division of the Canadian Pacific with office at Smiths Falls, Ont., vice F. Ronaldson, promoted.

B. F. Dickinson, supervisor of signals of the West Jersey & Seashore at Camden, N. J., has been transferred as supervisor of signals to the Philadelphia division of the Pennsylvania Railroad.

Persifer Frazer Smith, Jr., whose appointment as general superintendent of motive power of the Pennsylvania Lines West, with headquarters at Pittsburgh, Pa., as announced in these columns last week, was born August 1, 1870, at West Chestnut, Pa. After leaving high school he entered Warralls Technical Academy, from which he graduated in June, 1887. In October, 1887, he was employed by the Pennsylvania as an apprentice in the shops at Altoona, Pa. After several minor promotions he was appointed assistant road foreman of engines on the Pittsburgh division in February, 1892, and in August, 1893, was transferred with same title to the western division of the Pittsburgh, Ft. Wayne & Chicago.

On February 1, 1895, he was appointed assistant master mechanic at the Ft. Wayne (Ind.) shops, and in November, 1896, was promoted to master mechanic of the Cresline (Ohio) shops and the Toledo division. From January 1, 1900, to December 31, 1911, he was consecutively master mechanic of the Logansport, Dennison and Columbus shops of the Pittsburgh, Cincinnati, Chicago & St. Louis. On January 1, 1912, he was appointed superintendent of motive power, central system, Pennsylvania Lines West of Pittsburgh, which position he held until his recent appointment, noted above.

Oliver P. Reese, the announcement of whose appointment as superintendent of motive power of the Central system, Pennsylvania Lines West, with office at Toledo, Ohio, was made in these columns last week, was born on May 29, 1876, at Louisville, Ky. He graduated from Purdue university in 1898, and the following August entered railway service as an apprentice with the Louisville & Nashville, at Louisville, Ky. From January, 1900, to September of the same year he was a draftsman in the Pennsylvania shops at Allegheny, Pa., and from September, 1900, to September, 1901, he was engaged on special work for this same company at its shops at Ft. Wayne, Ind. In September, 1901, he was made a special apprentice, and in August, 1903, appointed gang foreman in the shops at Allegheny, Pa. From February, 1904, to December of the same year he was foreman of tests for the company at the St. Louis world's fair, following which he was appointed motive power inspector. From May, 1904, to May, 1906, he was general division foreman, and in June, 1908, was promoted to division master mechanic. In June, 1910, he became assistant engineer of motive power, and in September, 1911, was advanced to master mechanic. On May 31, 1915, he was appointed assistant engineer of motive power



P. F. Smith, Jr.



O. P. Reese

in the office of the general superintendent of motive power, which position he held at the time his appointment as superintendent of motive power became effective, as noted above.

#### Special

Thomas W. Hulme, secretary of the Presidents' Conference Committee on Federal Valuation of the Railroads, has been promoted to vice-chairman, with headquarters at Philadelphia, Pa.

Howard H. Hayes, formerly general tourist agent of the Wylie Camping Company, Yellowstone National Park, has been appointed manager of tours of the Chicago & North Western and the Union Pacific, jointly, succeeding S. A. Hutchison, whose death was noted in these columns last week.

Howard C. Phillips, assistant general secretary of the Presidents' Conference Committee on Federal Valuation of the Railroads, has been elected general secretary, with headquarters at Philadelphia, Pa. Mr. Phillips was born on May 6, 1869, at New York, and graduated from Princeton University in 1890, with the degree of C. E. In July of the same year he began railway work as assistant engineer with the New York & Northern, now a part of the New York Central, at Yonkers, N. Y., and was with that road until February, 1893, when he went to the New York, New Haven & Hartford as assistant engineer on construction, serving first on four-tracking work at Milford, Conn., and then to October, 1895, on the track elevation in Boston. He was then to 1898 in New Mexico, part of the time engaged on location survey work for the Pecos Valley & Northeastern. In February, 1898, he entered the service of the Atchison, Topeka & Santa Fe System as inspecting engineer, serving until October, 1899, in New Mexico, and working out of Topeka, Kan. From October, 1899, to the following October he was in charge of building branch lines in Oklahoma, and then to June, 1901, was in charge of grade reduction and line changes near Ottawa, Kan. He was then appointed assistant superintendent at Fort Madison, Iowa, in charge of the maintenance of the line between Chicago and Kansas City. From February, 1903, to June, 1904, he was engineer of the Western Grand division of the Santa Fe, at La Junta, Colo., and then was transferred to San Francisco, Cal., to complete the surveys and take charge of the construction of the San Francisco & Northeastern, with the title of chief engineer of that line. In September, 1906, he was appointed chief engineer of the Atchison, Topeka & Santa Fe Coast Lines, with headquarters at Los Angeles, and in April, 1912, was appointed valuation engineer of the Atchison, Topeka & Santa Fe System, with office at Chicago. He resigned that position in August, 1915, to become assistant general secretary of the Presidents' Conference Committee on Federal Valuation of the Railroads, and on January 1, 1917, was elected general secretary of that organization.



H. C. Phillips

#### OBITUARY

R. J. Harlan, general manager of the Wadley Southern and the Louisville & Wadley, with office at Wadley, Ga., died recently at Belding, Mich., at the age of 48.

Harry Chester Hooker, assistant to the president of the Erie at New York, died on January 7 at his home in that city at the age of 47. Mr. Hooker was born in Milwaukee, Wis., and in 1899 became private secretary to Frederick D. Underwood, then general manager of the Baltimore & Ohio. When Mr. Underwood was elected president of the Erie in 1901, Mr. Hooker accompanied him, and was retained as private secretary, and later became assistant to the president.

## Equipment and Supplies

### LOCOMOTIVES

THE COLORADO & WYOMING has ordered two six-wheel switching locomotives from the Baldwin Locomotive Works.

THE UNION PACIFIC is reported as having placed an order with the Lima Locomotive Works for 10 Mikado locomotives.

THE COLUMBIA, NEWBERRY & LAURENS has ordered one Consolidation locomotive from the Baldwin Locomotive Works.

THE BRITISH WAR OFFICE has ordered 50 Consolidation and 75 Prairie locomotives from the Baldwin Locomotive Works.

THE GUANTANAMO SUGAR COMPANY, Cuba, has ordered one Prairie type locomotive from the Baldwin Locomotive Works.

THE NEW YORK, NEW HAVEN & HARTFORD has ordered 40 Santa Fe locomotives from the American Locomotive Company.

THE SILVER FALLS TIMBER COMPANY, Silverton, Ore., has ordered one Mikado locomotive from the Baldwin Locomotive Works.

THE CAMBRIA STEEL COMPANY, Johnstown, Pa., has ordered two six-wheel switching locomotives from the Baldwin Locomotive Works.

PENNSYLVANIA LINES WEST.—A report says that the Baldwin Locomotive Works has an order from this road for 75 locomotives. This item has not been confirmed.

### FREIGHT CARS

THE SOUTHERN PACIFIC is in the market for 300 tank and 125 drop bottom gondola cars.

THE RICHMOND, FREDERICKSBURG & POTOMAC has issued inquiries for 300 to 400 box cars.

THE RUSSIAN GOVERNMENT is negotiating with Canadian car builders for a considerable number of the so-called pood cars.

THE TEXAS & PACIFIC is inquiring for 100 10,000 gal. capacity tank cars; 100 composite convertible ballast cars, and has asked for tentative prices on 400 50-ton composite coal cars and 200 steel underframes.

THE CHICAGO, MILWAUKEE & ST. PAUL will build 1,000 gondola cars in its Tacoma, Wash., shops. The cars will have wooden sides, and be equipped with steel center sills. The trucks will be let to the Griffith Wheel Works of South Tacoma, Wash.

THE FRENCH GOVERNMENT, through J. P. Morgan & Co., has issued an inquiry accompanied by specifications for approximately 20,000 railroad cars of four types. It is understood, however, that 40,000 cars may be purchased and that the total purchases will be about \$40,000,000.

UNION PACIFIC.—On the recent order for freight cars placed by the Union Pacific with several car builders, Bettendorf steel underframes will be applied to 1,500 box and 1,000 automobile cars, and both steel underframes and trucks are specified for 400 box and 2,700 refrigerator cars. This makes a total of 5,600 steel underframes and 3,100 trucks furnished the Union Pacific by this company.

### PASSENGER CARS

THE TEXAS & PACIFIC is inquiring for 5 dining cars, 16 coaches and 3 combination baggage and express cars, and has asked for tentative prices on 2 combination passenger and baggage cars.

### SIGNALING

THE BUFFALO, ROCHESTER & PITTSBURGH is to instal automatic block signals on its line from J. & B. Junction to Clarion Junction, Pa., twenty miles.

## Supply Trade News

Edward N. Hurley, chairman of the Federal Trade Commission, has resigned.

C. L. Mellor, formerly western representative of the Barco Brass & Joint Company, Chicago, has been appointed manager of sales, with headquarters in Chicago.

L. W. Miller, formerly eastern representative of the Barco Brass & Joint Company, Chicago, has resigned to accept a position with Fahn-McJunkin, Inc., New York City.

Arthur Aigeltinger, vice-president of the Manganese Steel Rail Company, New York, has been elected president of the company, in place of W. G. Pearce, who has been elected chairman of the board.

W. W. Darrow, secretary of the Camel Company, manufacturers of railway specialties and supplies, with general offices at Chicago, has been appointed general manager of this company, effective January 1.

C. C. Bradford, for several years sales manager of the U. S. Light & Heat Corporation, Niagara Falls, N. Y., has resigned from the company, effective January 1. Mr. Bradford has announced no plans for the future.

Charles H. Eib, for some time past a member of the sales force of the Republic Iron and Steel Company, Chicago, Ill., has been appointed manager of sales of the Chicago district, succeeding D. S. Guthrie, resigned to become affiliated with another company.

H. T. Armstrong, for the past three years connected with the sales department of the American Locomotive Company at Montreal, Can., has been assigned to the sales department of this company's Chicago office, calling on all railroads and industrial concerns using locomotives in western territory.

Waldo H. Marshall, whose resignation as president of the American Locomotive Company was accepted a few weeks ago, after a long fight had been waged against the management by Isaac Cates, of Baltimore, and other minority stockholders, has become associated with J. P. Morgan & Co. In his new position he will assist E. R. Stettinius, the partner in charge of the export department.

Thomas Wyatt Gentry, for many years southern sales representative of the American Locomotive Company, died January 8 at his home in Richmond, Va. He was 66 years old, having been born September 19, 1850. He was at one time master mechanic on the Richmond & Danville, now part of the Southern Railway, and entered the employ of the American Locomotive Company in 1893.

D. M. Kagay has been appointed manager of the publication department of S. F. Bowser & Company, Inc., effective January 1. For the past three years Mr. Kagay has held the position of advertising manager of the Richards-Wilcox Manufacturing Company, of Aurora, Ill., and has been the editor of the two house organs published by that firm. Prior to that time, Mr. Kagay was advertising manager for the Appleton Manufacturing Company of Batavia, Ill.

The Central Creosoting Company, Chicago, has purchased the property of the Chicago Creosoting Company. The officers of the new company are: chairman of the board of directors, S. H. Bingham, president American Tar Products Company; president, Joseph B. Card, president Indiana Zinc Creosoting Company; vice-president, E. J. Stocking, formerly sales manager, Chicago Creosoting Company; secretary, Wm. W. Thompson, Wm. W. Thompson & Co.; treasurer, Richard Tenwick.

The Western Electric Company now has under construction at Hawthorne, Ill., nine new buildings, which will add approximately 319,000 sq. ft. of floor area to the company's plants, making an increase in manufacturing space of 20 per cent. Altogether, nine buildings are being erected, five of one story, and

four of five stories. The one story structures are for extensions for manufacturing equipment, for enameled wire, braided wire, etc., while the five-story buildings provide space for an increase in the manufacture of equipment for telephone apparatus.

Stowell Cortland Stebbins, western sales and advertising manager of the Lansing Company, Lansing, Mich., the announcement of whose election as secretary was made in these columns last week, was born at Lansing, Mich., July 29, 1886. After leaving high school he attended the Michigan Agricultural College, and the University of Michigan at Ann Arbor, Mich. In July, 1910, he entered the employ of the Lansing Company as an assistant timekeeper, and a year later was transferred to the sales department. In 1912 he was appointed western sales manager, and in 1914 he also took over the duties of advertising manager, holding these two positions until his present election, as noted above. In addition he was also elected a member of the board of directors. He succeeds Harry E. Moore, elected vice-president.



S. C. Stebbins

J. G. Blunt, superintendent of the general drawing room of the American Locomotive Company has been appointed mechanical engineer of that company with headquarters at Schenectady, N. Y. Mr. Blunt has been in the employ of the company or its predecessors since 1897. He was born April 7, 1868, at Cincinnati, N. Y. He took the mechanical engineering course at the University of Michigan. After spending four years as machinist and draftsman with various manufacturing companies, he accepted a position in 1897 as a draftsman with the Brooks Locomotive Works at Dunkirk, N. Y. and later became chief draftsman of that company. Mr. Blunt has been in the service of the American Locomotive Company or its predecessors continuously since that time. When the engineering work of all the company's plants was consolidated at Schenectady he was transferred to that plant as engineer of the drafting department and later became superintendent of the general drawing room.



J. G. Blunt

The Interstate Iron & Steel Company, Chicago, recently has bought outright the entire property and business of the Grand Crossing Tack Company, Chicago. This purchase gives the Interstate Iron & Steel Company, in addition to its present works, an open hearth steel plant and a blooming mill, as well as a complete line of nails, wire and wire products. Samuel Hale, formerly with the Wisconsin Steel Company, Chicago, and later general manager of the Algoma Steel Corporation, Sault Ste. Marie, Ont., becomes vice-president in charge of the steel division. There will be no other change in the management, S. J. Llewellyn remaining as president and George F. Davie as vice-president and treasurer. The Interstate Iron & Steel Company started in 1905

in a small way with a rolling mill at East Chicago for the manufacture of iron and steel bars and shapes. At that time it had a capacity of about 30,000 tons per year. It has always been active in the railway supply field. With the properties it has recently acquired, and with improvements which will soon be finished, it will have plants having an output of 275,000 tons annually. Its products now include common bar iron, plain and twisted reinforcing bars, refined bar iron, bar iron for car work, engine bolt and stay bolt iron, wrought iron and steel tie plates, and a full line of steel bars, wire rods, wire nails and other wire products. It now has iron rolling mills at East Chicago, Ind.; high carbon steel rolling mills at Marion, Ohio; an open hearth plant and a blooming mill at South Chicago, and a rod mill and wire works at Seventy-ninth street, Chicago.

The Atlas Preservative Company of America, Inc., New York, announces a re-organization of the company whereby the weed-killing business will be continued according to the Atlas "A" method, under the name of the Chipman Chemical Engineering Company, Inc., beginning January 1, 1917. The staff of the company will be the same as that of the Atlas Preservative Company of America, Inc. R. N. Chipman, manager of the Atlas Preservative Company, will be president and general manager of the Chipman Chemical Engineering Company. The company's executive offices will, as heretofore, be at 95 Liberty street, New York. The factory will be at Bound Brook, N. J., on the Lehigh Valley and Central of New Jersey and will have double the capacity of the present facilities of the company.

#### Hugh M. Wilson Resigns as Vice-President of McGraw Publishing Company

Hugh M. Wilson, formerly associated with *The Railway Age* and for several years its owner, and since 1910 first vice-president of the McGraw Publishing Company, has resigned from the latter position to devote himself to his personal interests.

Mr. Wilson has been in journalistic work during practically his entire business life. His first experience was as city editor of the Jacksonville (Ill.) Daily Journal. He subsequently was reporter on the Minneapolis Evening Star, but in 1889 changed to the technical paper field and joined the staff of the Mississippi Valley Lumberman. With but one brief interruption since he has devoted his energy and abilities to the object of developing magazines in trade and technical lines.

He gained his first experience with railroad papers, as an associate editor of the Northwestern Railroader and shortly after that publication was consolidated with *The Railway Age*, at Chicago, he was made secretary-treasurer of the new organization. He subsequently became manager of *The Railway Age*, meanwhile continuing as secretary-treasurer, and was elected president of the company in 1899.

In these years, although busily engaged in the business department of the paper, he found much time for editorial work, particularly on news matters relating to the purchase of equipment and supplies. His familiarity with this branch of railroad work soon made him an authority and fitted him for the work he did as secretary of the Railway Supply Manufacturers' Association from 1897 to 1902.

His energy was perhaps best displayed by the publication during the International Railway Congress at Washington, in 1905, of a daily edition of *The Railway Age*, which was designated as the official journal of the congress. Supplementing the praise showered on him by both American and foreign delegates for the



H. M. Wilson

success of this enterprise, he was created a chevalier of the Order of Leopold by the King of the Belgians.

In 1906 the Wilson Company, with Mr. Wilson as the controlling owner, was organized, taking over *The Railway Age* and the *Street Railway Review*, which had just then been purchased and which was changed shortly to the *Electric Railway Review* and from a monthly to a weekly publication.

Two years later Mr. Wilson sold both papers. *The Railway Age* was consolidated with the *Railroad Gazette* to make the present *Railway Age Gazette*, while the McGraw Publishing Company purchased the *Electric Railway Review* and consolidated it with the *Street Railway Journal* under the name of the *Electric Railway Journal*.

Mr. Wilson immediately went abroad for an extended trip, and on his return in June, 1909, was elected vice-president and a director of the Barney & Smith Car Company, Dayton, Ohio. He continued with the Barney & Smith Car Company until 1910 when he was elected first vice-president of the McGraw Publishing Company, the position he is now relinquishing.

To quote from the *Engineering Record*: "Mr. Wilson's strength as a publisher and his success in building up strong technical magazines has been due to his ability to sense the trend of events, and to keep before him meanwhile certain clear ideals as to the place of the magazine in its industry or profession. He never faltered in his presentation of the truth, when the speaking of the truth was timely and would be productive of good. Frequently that course offended powerful interests, who were unable to see, as he saw it, that the ultimate good of all could be served only by such a course. But that never caused him to hesitate. His influence not only on the journals with which he was connected but on the whole field of trade and technical journalism will be a lasting one."

#### Steel Corporation's Unfilled Orders

Unfilled orders on the books of the United States Steel Corporation at the close of business on December 31, 1916, were 11,547,286 tons, the largest total ever recorded. This was an increase of 488,744 tons over the orders reported as unfilled on November 30, 1916, a month previous. The orders at present are over three times those at the same time two years ago.

#### TRADE PUBLICATIONS

**SAWS.**—The Simonds Manufacturing Company, Fitchburg, Mass., has issued a 180-page catalogue of its line of saws, knives, files and special steels.

**PORTABLE TOOLS.**—Portable Tools of Chosen Value is the title of a small booklet recently issued by the Stow Manufacturing Company, Binghamton, N. Y., manufacturers of Stow flexible shafting.

**KEROSENE AND OIL BURNERS.**—The Hauck Manufacturing Company, Brooklyn, N. Y., has issued Bulletin No. 80, describing and illustrating its concrete heater for use with concrete mixers in cold weather. Reference is also made to the application of these burners for thawing, for preheating in connection with welding, and in forges and melting furnaces.

**HIGH SPEED STEEL.**—Catalogue No. 33, recently issued by the Midvale Steel Company, gives very complete information relative to the company's alloy and tool steel. The book is in five sections, dealing respectively with the following subjects: I, Midvale carbon tool steels, special alloy tool steels, high speed steels and Steelite. II, Midvale tool steel specialties, steels for hot work, miscellaneous steels, machinery steels, etc. III, Midvale alloy steels. IV, Forged shear blades, forged die blocks, steel rolls, etc., and forgings. IV, Tables and useful information, and curves showing critical temperatures and physical properties. Under the various sections information is given as to the characteristics of the steel, its working, the grade numbers and uses of the various temper grades, the list of brands and the purposes for which each brand is best adapted, and the list of extras, etc. The booklet contains 144 pages, and has an 18-page index. The Midvale Steel Company has also recently issued a separate booklet giving information as to Midvale high speed tool steels. This booklet has 22 pages and a number of illustrations of machines on which high speed steel is being used.

## Railway Construction

**BUFFALO, ROCHESTER & PITTSBURGH.**—A contract for grading for a second track of this road between Marion Center, Pa., and Home, has been let. The present passing sidings between these stations will be connected up, making a double track for 3.5 miles. Work on new passing sidings at Clarion Junction, Pa., will soon be completed.

**CHARLOTTE, MONROE & COLUMBIA.**—Plans are being made for building an extension, it is said, from Jefferson, S. C., northwest to Monroe, N. C., about 30 miles. The company now operates a line from McBee, S. C., where connection is made with the Seaboard Air Line northwest to Jefferson, 18 miles.

**INTERPROVINCIAL & JAMES BAY.**—The Dominion parliament has been asked to extend the time in which to build this projected line. The plans call for building from the Canadian Pacific branch line from Mattawa, Ont., now terminating at Lumsden's Mills, Que., to or towards the Des Quinze river. Pringie, Thompson, Burgess & Cote, Ottawa, Ont., are solicitors for applicants.

**LOUISVILLE & NASHVILLE.**—Surveys for building a 10-mile extension have been made, it is said, from Norton, Va., to the head waters of Guest river in the Black mountain section.

**MILTENBERG & SOUTHEASTERN.**—Incorporated in Louisiana with \$100,000 capital, and headquarters at Alexandria, it is said, to build a line from Miltenberg, La., to a connection with the St. Louis, Iron Mountain & Southern at a point about eight miles south of Alexandria; also to build from Miltenberg west to Leesville, about 45 miles, with the privilege of building extensions. W. D. Brewer, president; N. S. Scott, vice-president; Ernest Bullington, secretary-treasurer; G. B. Morley, W. A. Brewer, F. D. Ewen and E. W. Glynn are stockholders.

**NEW ORLEANS, FT. JACKSON & GRAND ISLE.**—See New Orleans and Lower Coast.

**NEW ORLEANS & LOWER COAST.**—This company was organized some time ago to take over and operate the New Orleans, Ft. Jackson & Grand Isle, and will build an extension from Burns, La., to Venice, a distance of about 16 miles. The new line will follow the Mississippi river the entire distance. No special engineering difficulties are presented. No contracts for this undertaking have as yet been let. H. D. Emerson, president, New Orleans, La.

**OREGON-WASHINGTON RAILROAD & NAVIGATION COMPANY.**—This company will spend between \$3,000,000 and \$4,000,000 during 1917 in reducing grades, rebuilding stations, installing sidings and reducing the curvature on its lines in Washinton and Oregon.

**ROBY & NORTHERN.**—This company will let contracts in April for the construction of an extension of its line from North Roby, Tex., to Sweetwater, Tex., 23 miles. While the engineers have not yet completed surveys for the entire distance, it is estimated that there will be approximately 8,000 cu. yd. of excavation per mile; the maximum grade will be one per cent and the maximum curve three deg. There will be four steel and concrete bridges, averaging 1,200 ft. each. A roundhouse, a machine shop and terminals are planned at Sweetwater. The first section of the line, running from Roby to North Roby, a distance of 5 miles and amounting to about 12 per cent of the entire work, has already been completed. No rolling stock will be purchased, as this has been provided for previously. L. C. Eastland, Hillsboro, Tex., vice-president and general manager.

**WESTFIELD RIVER (ELECTRIC).**—Residents of Huntington, Worthington, Chesterfield and Cummington have petitioned the Massachusetts legislature, it is said, to pass a bill incorporating the Westfield River Railway. The company is to have a capital of \$182,000 and plans to build an electric line along Westfield river and Major brook. L. E. Hardy, Huntington, is interested.

**WILKES-BARRE & HAZLETON (ELECTRIC).**—Preliminary surveys are being made to build an extension, it is said, south via McAdoo, Pa., to Tamaqua, where a connection is to be made with the Philadelphia & Reading.

## RAILWAY STRUCTURES

ATLANTA, GA.—A contract is reported let by the Southern Railway to the H. J. Carr Company, Atlanta, for putting up a new station at Brookwood. The proposed structure is to be built on the west side of Peachtree street, where the railway tracks pass beneath a concrete viaduct at Brookwood. It will be of brick construction with terra cotta trimmings, and the floors and wainscotings will be of marble. The contract calls for the completion of the work by July 1, 1917.

BOSTON, MASS.—Regarding the report that a contract had been let by the Boston & Albany for building a bridge over Chelsea creek, at East Boston, an officer writes that the only action taken is a contract entered into with the Strauss Bascule Bridge Company for plans and patent rights. No further action will be taken for some time to come.

DULUTH, MINN.—A contract for the foundations for the new ore dock, to be built here by the Duluth, Missabe & Northern, has been let to the Barnett & Record Construction Company. The new dock will be entirely of steel with concrete foundations. The dock will have 384 pockets, each with a storage capacity of 350 tons of ore. It is expected to have the dock ready for use in the early fall. The approximate cost of this undertaking is estimated at \$2,250,000.

MONTGOMERY, ALA.—The Central of Georgia is planning to build a reinforced concrete bridge over its track at Montgomery. It will consist of 8 spans, 23 ft. long and will cost \$10,000.

OIL CITY, PA.—The Pennsylvania Railroad will carry out improvements at Oil City to include the construction of a bridge over the Allegheny river, in order to make a direct connection between the Buffalo division and the Salamanca branch, and provide a direct route into Oil City. The work will consist of elevating the tracks through Oil City, eliminating three grade crossings and the construction of a 15-span bridge over the river. Over the main channel there will be one span 399 ft. long. There will be five 100-ft. spans, one 56-ft. span, one 47-ft. span and seven 43-ft. spans.

RICHMOND, VA.—Work will be started in March on the union passenger station to be built on West Broad street in Richmond by the Richmond Terminal Company. The proposed structure will be four stories high and will be built of Indiana limestone, for the joint use of the Richmond, Fredericksburg & Potomac and the Atlantic Coast Line. The question of building a station for the joint use of these two roads has been under consideration for several years.

BRITISH RAILWAY FARES RAISED.—All railway fares in Great Britain have been increased 50 per cent, beginning January 1, 1917.

NO IRISH RAILWAY STRIKE.—The complaint of the railway men in Ireland has been amicably settled. The men have been granted an increase of seven shillings (\$1.75) in their wages. They had asked for ten shillings (\$2.50), on the ground of the increased cost of living.

NEW LINES IN INDIA.—The Railway Board has sanctioned reconnaissance surveys being carried out by the agency of the Great Indian Peninsula Railway for the following lines of railway on the 2-feet 6-inch gage: (1) From Damoh, a station on the Great Indian Peninsula Railway, to Amangang via Hatta, a distance of about 60 miles. (2) From Mau-Ranipur, a station on the Great Indian Peninsula Railway, running north to Garotha and south via Tehri to Maraura, with a connection from Tehri to Lalitpur, a distance of about 120 miles.—*Indian Engineering*.

LIGHT RAILWAYS IN CHINA.—A company under the title of the Swatow-Changlin Light Railway Service has been inaugurated at Swatow and the sanction to construct and operate the line has been granted by the local authorities. The aim of the company is to build and operate a line of light railway from Swatow to an interior point called Changlin, a distance of about 20 miles, via Chenghai, a city situated midway between the two termini. It is reported that the capital will be \$500,000 local currency about \$250,000 United States currency). Construction of the roadbed has been begun.—*Commerce Report*.

## Railway Financial News

BOSTON & MAINE.—Judge Morton, in the United States district court at Boston, has ruled to continue the temporary receivership of the Boston & Maine pending final action making it a permanent receivership. The temporary receivership was attacked by certain minority stockholders on the ground that the appointment of a temporary receiver was improper and unnecessary.

CHICAGO & NORTH WESTERN.—This company has asked the Public Utilities Commission of Illinois for authority to issue \$15,250,900 stocks.

CHICAGO, ROCK ISLAND & PACIFIC.—Attorneys representing Daniel G. Reid and William H. Moore, who were sued by minority stockholders of the Chicago, Rock Island & Pacific for \$17,500,000, appeared before Federal Judge George A. Carpenter this week and formally offered to settle the claim by purchasing \$5,000,000 of 6 per cent preferred stock of the railroad company, paying \$500,000 damages in currency and to pay all the costs of the litigation, which started in 1915. The suit was begun by the minority stockholders, of which N. L. Amster, of Boston, is chairman. There was no opposition to the offer. Ten per cent of the stockholders have not deposited their stock under the Chicago, Rock Island & Pacific reorganization plan, and in anticipation that some of these might object to the acceptance of the terms to the proposed settlement. Judge Carpenter continued further hearing of the case until January 29.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—In the table showing dividend changes published in the *Railway Age Gazette* of December 29, page 1175, through a typographical error a 5 per cent dividend was shown as having been declared on the Cleveland, Cincinnati, Chicago & St. Louis common stock. There was no dividend declaration on the common in 1916, but 5 per cent was declared on the preferred.

MISSOURI PACIFIC.—February 21 has been fixed as the date for the foreclosure sale of the Missouri Pacific.

SOUTHERN PACIFIC.—An income tax of \$183,883 on the dividends paid by the Central Pacific to the Southern Pacific has been upheld as legal by Judge Manton in the federal district court.

SOUTHERN RAILWAY.—Stockholders have voted to approve the suggestion of the board of directors for the creation of a new mortgage to secure a maximum of \$500,000,000 bonds and to exchange the outstanding 4 per cent development mortgage bonds for new bonds bearing 4½ per cent interest and to exchange the development 4's in the company's own treasury for new bonds bearing 5 per cent interest.

WHEELING & LAKE ERIE.—L. F. Loree, president of the Delaware & Hudson, and chairman of the board of the Kansas City Southern, has been elected chairman of the board of the new Wheeling & Lake Erie. The other directors of the new company are as follows: Johnston de Forest, W. M. Duncan, F. H. Ecker, N. S. Meldrum, Warren Bicknell, James A. Campbell, Arthur House, J. H. McClement, H. Hobart Porter, W. R. Begg, Thomas S. Grasselli, E. A. Lagenbach and F. A. Seiberling. The following were elected members of the executive committee: F. H. Ecker, L. F. Loree, N. S. Meldrum, H. Hobart Porter and W. M. Duncan.

VEGETARIAN MENUS ON THE L. & N. W. R.—A move in the right direction is the providing of vegetarian dishes at the various hotels and station dining rooms on the London & North-Western Railway system. There is a variety about the dishes provided which looks very attractive on paper, and we are assured by one who has tried it that the fare is both excellent and filling. Here is a typical *table d'hôte* menu at 2s. 6d. (\$.60): *Soups*, marmite or tomato. *Entrées or Savouries*, poached eggs with spinach or macaroni cutlets; potatoes and cabbage. *Sweets*, apple tart, or prunes and rice.—*Railway Gazette, London*.